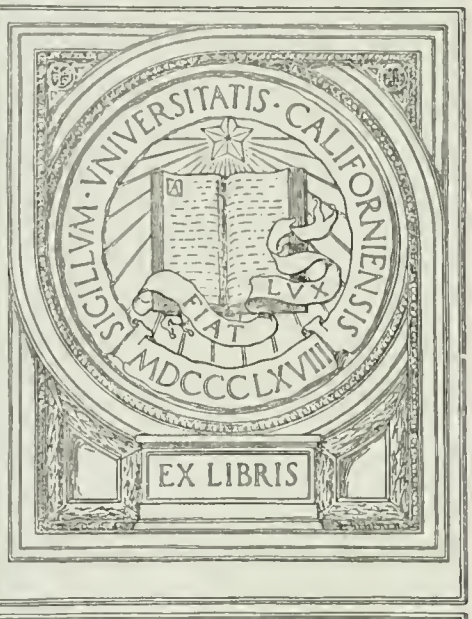
UNIVERSITY OF CALIFORNIA
AT LOS ANGELES



ROBERT ERNEST COWAN

ENCYCLOPÆDIA METROPOLITANA;

OR,

GENERAL SYSTEM OF KNOWLEDGE.

TREATISES

ON

THE FINE ARTS.

LONDON AND GLASGOW:

RICHARD GRIFFIN AND COMPANY,

PUBLISHERS TO THE UNIVERSITY OF GLASGOW.

5303
E56

COWAN LIBRARY, 1936

255390

PAINTING.

HISTORY OF THE ART.

HISTORY OF ANCIENT ART.

Painting. Origin of Painting.

To renew that inquiry of the over-curious, as to the country wherein the Art of Painting was first invented, is nearly as absurd as to raise a question with regard to the persons who may have originated the Art of dressing skins or cooking meat, or introduced any of the commonest occupations of life; so natural is imitative Art to man, and so common is it to find some efforts in this line even among the rudest people, and those who are the farthest removed from the chance of intercourse one with another. We shall only observe, then, generally, that the extreme antiquity of this Art is fully shown, when it is admitted as a fact, that the use of representation by outlines, imitating the external forms of things, preceded the use of arbitrary and conventional signs amongst Mankind. Hieroglyphics were used before Letters, and the Art of Drawing is therefore undoubtedly prior to that of Writing; and we might fairly substitute this simple statement for the more common and fabulous part of its History. Of the fact we have proof enough in the painted and engraven monuments of Egypt, Persia, and India, as well as in the stained leather of the savages of the Ohio and the Mississipi, who relate a battle by figures of men fallen and falling, just after the same fashion. Very forcibly indeed are these ancient and primitive, and necessary habits of the human race brought before our eyes, in the accounts we daily receive of those uncivilized nations, among whom we view Man as a social animal during the time that the state of society is in its infancy.

Raphael Mengs remarks with great truth, that it might have happened that the Art of design was invented at the same time in Greece, Egypt, and in Tuscany, or that some of these people, of whom Historians speak as inventors, did themselves receive the Art from others who practised it before their day; but, after what has been observed above, this is of little consequence. We must consider, therefore, the stories related by ancient authors, as to the invention of the Arts of Painting and Statuary, not as relating actually to the first discoverer, but to that person of whose successful efforts the earliest tradition has been preserved,—to the improver, rather than the originator. Such was Gyges, a native of Lydia, who, as Pliny informs us, was a teacher of the Art of Painting amongst his countrymen in Asia Minor; and by whom the practice was afterwards carried into Italy by a colony from those parts, known under the name of the *Hetrusci* or Tuscans. Of the degree of skill possessed by these Hetrurians, some writers have asserted, that specimens may yet be seen in the painted figures discovered in the tomb of an ancient monarch, on the site of *Clusium*, and in some similar relics at Arezzo and Viterbo.

In a like view must we regard the stories of the love-sick girl tracing the shadow of her suitor's profile on the wall, by the light of a lamp, or of the shepherds marking with their crooks the outline of their shadows, projected by the sunshine upon the sand. Such, too, are the claims usually put forward on the part of the Egyptians to the invention of the Art of design; that people probably were inventors, as many other people were so; but only among themselves, and for themselves. And no doubt there were attempts made by other countries as well as these, and perhaps at as early a date: we certainly read of Pictures being in use amongst the inhabitants of the land of Canaan, at the time that the Israelites took possession of it; the words in our translation of the Bible, in which Moses addresses the Israelites, are these, "destroy all their Pictures, and destroy all their molten images.' *Exod.* xxxiii. 52. And whether borrowed from Egypt or otherwise, it is clear that the Art of design was not unknown amongst the Jews themselves, either as Statuaries or Painters: for we read of the image of a calf set up by them in Dan; and we read in the prophet Ezekiel, of the "form of creeping things," &c. "portrayed upon the wall." *Ezekiel*, viii. 10.

School of the Ancients.

All that is here mentioned under the name of Picture or Painting was probably no more than a simple delineation of form, the interior of which was occasionally filled up with colour; such as the earliest specimens of Egyptian Art present to our view; the capacity of executing such matters in such sort, being, as we have said, natural to Man as an imitative animal.

Its progress

The further developement of the Art of Painting, of that, indeed, which alone gives it a title to the name of Art, has been to a certain extent detailed to us by the ancient writers of Natural or Civil History. And the successive degrees of improvement which were achieved in these early days, afford to our contemplation a curious analysis of the nature of those ideas relative to Painting, which in the present more advanced state of our knowledge appear so simple in themselves, and to need so little elucidation. In our HISTORICAL and BIOGRAPHICAL DIVISION, we have already stated a few particulars relative to some of the Early Painters of Greece, (vol. ix. p. 404.) Without repeating what has there been said, we shall here notice the several steps by which they appear to have advanced the Art of Painting. One of the first instances of the progress of this Art is shown in the attempt to give a greater durability to the colours than had hitherto been attained.

Use of fire by Polygnotus.

Polygnotus, (the elder of that name,) an Athenian, is said to have been the first who subjected his works to the action of fire for this purpose: but it is uncertain whether it was the encaustic method, the mode of Painting in enamel, which he invented; or, whether it was simply that he first adopted the use of wax with his colours, which of course could not be applied without some degree of heat; or it may be, that he merely invented the style of delineating by means of burning the surface

Painting.

of wood with hot irons, producing something similar to that which we now know under the name of *poker drawings*. Polygnotus lived about the XIVth century before our Saviour.

Monochromatic style, or *Chiaro-oscuro*.

The next step in Art was made, as we are told, by the Greeks, who invented what is called the Monochromatic style or the use of a single colour, or that which we now describe under the title of Painting in *chiaro-oscuro*. It might be black and white that was made use of for this purpose, or a brown or a gray colour, or indeed any other, so long as the difference of the parts was marked only by the intensity or strength of the respective shades of colour, not by a variety of colours. It may seem singular at first sight, that the use of many colours should have preceded the simple use of one colour only: but when we regard the nature of the means by which an effect is to be produced, we must instantly recognise the proof of a greater progress in Art having been made in this case than the former; for to paint trees as green, or sky as blue, is one of the easiest and most obvious of the efforts of imitation, but to distinguish them by degree of shade alone, or, which is the same thing, by the intensity of the colour, when one only is employed, requires no small degree of knowledge and skill: it is, in fact, the power of giving relief to one body beyond another, and representing on one even plane surface the appearance of a variety of objects or parts which stand out or recede one from the other.

Reason why this was not the first stage of the Art.

We have an account given us by Cheselden, of a young man originally born blind, and afterwards receiving his sight from the operation of couching, at a time when his judgment was sufficiently advanced to give an account of his observations; namely, at the age of thirteen years. He says, "we thought he soon knew what Pictures represented, which were shown to him, but we found afterwards we were mistaken; for about *two months after* he was couched, he *discovered* at once they represented *solid bodies*, when to that time he considered them only as *particoloured* planes, or *surfaces diversified* with *variety of paint*; but even then he was no less surprised, expecting the Pictures would feel like the things they represented, and was amazed when he found those parts, which by their light and shadow appeared now round and uneven, felt only flat like the rest; and asked which was the lying sense, feeling or seeing?" (Smith's *Optics*, 1, 5, p. 43.) This story makes us acquainted with the progress of the human mind in these particulars. The distinctions of colour were natural, they seemed, from the first, familiar to the patient's comprehension, or at least were acknowledged as soon as perceived: but that an apparent variety of prominence and recess should result from adopting a variety of shade, was by no means an idea so soon to be acquired. His mind had not made the necessary observations on the appearance of objects in Nature to enable him to comprehend this fact; and hence it seemed to him quite easy to distinguish the object by different colours, but he required an explanation with respect to their distinction by means of light and shade. It is difficult for us in these days to recur even in imagination to the thoughts and ideas of an unenlightened mind; but we may learn much from this story. Thus, it is clear that the Painters in *chiaro-oscuro* showed greater skill than the Painters in various simple colours: it was indeed, perhaps, the most important discovery yet made by the artist; and we may add, that it was only the application of this same principle of the monochromatic style to a number of colours so combined together, that afterwards introduced the most perfect and beautiful of all the artificial processes with which the Art of design is acquainted. All the exquisite delight that is to be derived from variety of light, shade, and tint, flowed from the developement of this single principle of the monochromatic style.

School of the Ancients.

The next invention of which we find notice, regarded skill in Drawing, with respect to the attitude and posture of animate figures; and as former Painters had made all their figures still, alike, and upright in their lines, he was a great improver who first ventured to represent them with their heads looking upwards or downwards, or sideways, (the *catagrapha* of the ancient writers;) in short, who represented them in any way except that which was the most inefficient representation of the original, and yet the easiest to accomplish. The honour of this improvement is attributed to *Cimon of Cleone*; who also, with similar boldness of mind, ventured to make a fresh innovation in established practices, by marking out the muscles and veins of the human body, and the folds of garments.

Cimon of Cleone diversifies attitudes.

We next hear of *Phidias*, a person most celebrated indeed as a Sculptor, but who also exercised the sister Art of Painting: he flourished about the IVth century before the era of Christ. He is stated by Pliny to have painted a *Medusa's head* at Athens with wonderful skill. Of other artists of this date we may mention the name of *Mycon*, also an Athenian born, and, like Phidias, a Sculptor as well as Painter. He is celebrated for his preparation of a famous black pigment out of some part of the vine, (*trigynon*,) and seems to have turned much of his attention to the *matériel* of the Art; he is said also to have been the first person that made use of Attic ochre as a colouring substance in his Pictures.

Phidias.

Mycon.

Apollodorus of Athens also possessed skill in both these lines of Art. It is recorded of him, that he was so fastidious as to destroy his finished works, and was in the practice of breaking them up, (whatsoever might have been the pains and cost expended,) if they did not correspond in the end to the conception which he had formed in his mind. The expression of Pliny with regard to him, that he was the first whose Painting fixed and absorbed the attention of the spectator, leads us to form a high idea of the improvements which he effected in this Art; and this idea is strengthened by the fact of his being noted as first showing the method of discriminating with delicacy the various gradation of shades in Painting. He seems also to have noticed that the colours of objects were to be preserved even in those parts which were darkened in shade, and hence he obtained among his countrymen the name of the Shade-Painter. It must be added, that this merit, asserted of Apollodorus by Plutarch, is attributed by Quinctilian to Parrhasius.

Apollodorus.

Parrhasius was a native of Ephesus who flourished about the same time, and a person who certainly greatly added to the advancement of the Art. He is universally praised for the attention which he paid to the symmetry of the human figure in Drawing, for his attempts to give an improved expression to the countenance, to form the curls of hair with grace, and carefully to finish the extremities of the hands and feet. But of all the great names among the Painters of antiquity, none, perhaps, are more celebrated than that of *Zeuxis*.

Parrhasius.

Zeuxis.

Painting. a native of Heraclea, one of those artists who came to Athens at the call of Pericles, and subsequently acquired great wealth by the practice of his profession. He it was that painted *The Venus* at Crotona, from a selection of the several beauties of all the fairest virgins of that city; and he it was that maintained the noted contest with Parrhasius, to which we have adverted elsewhere. Some of his designs, such as figures on vases and vessels of pottery, seem to have been collected and preserved with great care by the connoisseurs of ancient Rome.

Aristides. *Aristides of Thebes* is reported by Pliny to have been the first Painter who represented the various emotions of the mind, in the delineation of the human countenance. He depicted passion and sentiment with great success; but his works are said to have been harsh and unpleasant in their tone of colouring. We presume that he limited himself to the province of History; for the subjects ascribed to him are chiefly such as the following, *Bacchus and Ariadne*, *The Sacking of a Town*, and *A Battle between the Greeks and Persians*. We are furnished too, by the same author, with some clue to the pecuniary value at which the labours of an artist were commonly estimated; since in the last-named Picture, which contained one hundred figures, Aristides received ten minæ for each; the purchaser being Muason the Tyrant of Elis. Attalus of Phrygia also purchased one of the Pictures of this artist at the price of one hundred talents; and when Greece fell under the arms of Rome, such was the rage of amateurship, that the price of six thousand sesterces at a public sale for a Picture was offered by the same King Attalus, and refused. Attalus, too, who seems to have been a great collector, went so far as to offer sixty talents for a Picture by Nicias of Athens; but here also unsuccessfully, for the Painter gave it to his Country.

Pamphilus. We may mention here, as relative to this part of our subject, the name of *Pamphilus of Macedon*, the master of Apelles, whose terms for instruction were so high, that those who complied with them must have entertained a vast reverence for Art. He received no less than a talent for ten years of tutorage, or, as the passage has sometimes been explained, a talent for each year as far as ten. It was by the influence of this same Pamphilus, that the law was first passed at Sicyon (where his School was held) which afterwards was adopted throughout Greece, That all boys born of free parents should be taught the Art of design; and to prove their admiration for it, the study was interdicted to slaves.

Apelles The story of *Apelles*, the Painter of Alexander the Great, is well known. He fell in love with Campaspe while painting her Portrait, and received her as a gift at the hand of that truly munificent monarch. It was Apelles too who once making a visit to a brother artist, to whom he was personally unknown, and finding that he was absent from home, left a sketch of a head in the hands of the domestic. Upon the return of Protogenes the sketch was shown to him, and he cried out, as it were intuitively, it must be Apelles himself, for no other mortal could have made this design. The most noted works of Apelles were an allegorical Picture of *Calumny*, *Alexander bearing a Thunderbolt*, *Venus rising out of the Sea*, *The Procession of Megabyzus*, *The Priest of Diana at Ephesus*, *Clytus arming for Battle*, *Menander King of Caria*, *Anœus the Argonaut*, &c., besides which, during his visit to Rome, he painted a *Castor and Pollux*, a figure of *War* with her hands bound behind her, *Alexander the Great* in a triumphal chariot, a figure of *Victory*, &c. Sandrart makes mention of a specimen of ancient Painting, preserved in the Academy of St. Luke at Rome, which was certainly of Grecian origin, and generally considered as the work of Apelles. He has given an engraving of it in the *Academia Artis Pictoriæ*, lib. i. c. iv p. 75. The improvement in the Art, for which Apelles is most celebrated, is the varnish with which he used to cover his Pictures, on which we shall presently have occasion to insert a remark by Sir J. Reynolds.

School of the Ancients.

His varnish.

Protogenes *Protogenes of Rhodes* will be readily recognised by the reader of History, as the Painter who succeeded in making the representation of foam at the mouth of a horse, by dashing his sponge in a lucky fit of passion upon his Painting. It was his Picture of *Temperance* which forced from the mouth of his rival Apelles that extravagant compliment, that it was a work worthy of being carried to Heaven by the Graces. Protogenes also painted the beautiful *Cydippe*, *A Satyr named Jalysus*, *Tlepolemus son of Hercules and Astioche*, *Philiscus (the Tragedian) in meditation*, *King Antigonus*, *Athleta the mother of Aristotle the Philosopher*, and *A Sea-piece*. With his name we may close our account of Grecian Painters, as the Art seems to have declined greatly after his time, which, though he long survived that conqueror, we may call the Age of Alexander the Great.

Roman School. As to the Romans, and the skill which they acquired in the Art of design, we know that no great taste for the Arts, either of Painting or Sculpture, was visible amongst them before the time of the capture of Corinth; and that almost every specimen which they possessed, even as late as the time of the Empire, was either imported from Greece, or the work of Greek artists settled at Rome. There was, indeed, one *Pacuvius of Brundusium*, a nephew of Ennius the Poet, who practised Painting; and we learn that one of the *Fabii*, who was living in the IIId century before our Christian era, made great proficiency in the Art, and painted with his own hand the walls of the Temple of the Goddess of Health and this work was preserved even in the days of Pliny. We gather, indeed, amidst the profusion of praise lavished on him by Cicero, that he was remarkable for the variety of his attainments, and in point of taste ranked far higher than most of his countrymen. An account is given us of a Picture, representing the battle in which he overcame the Carthaginians and Hiero King of Sicily, having been placed in the *Curia Hostilia*, by Marcus Valerius Messala, in u. c. 409. Lucius Hostilius Mancinus also, who first made an inroad into Carthage, exposed a Picture of that assault in the *Forum*, and used to seat himself there to explain it to the People. L. Scipio moreover put up in the Capitol a tablet to commemorate his conquest in Asia: we have no reason however to imagine that these monuments possessed any great merit as works of Art. We have the testimony of Virgil to show, that, even in his more civilized Age, these peaceful Arts were not held in much honour by the Roman People. Nevertheless, in a later day, the Art of drawing seems to have been taught to the youth of both sexes, and we find upon record the names of many females who attained a considerable degree of skill; Martia, the daughter of Varro, is mentioned in particular for her excellence in this line.

Pacuvius

Fabius

Painting.

Painters of the Augustan Age. Ludius.

Several Painters were resident at Rome during the reigns of Augustus and Tiberius. Of these, *Ludius* is celebrated for the taste and skill with which he decorated, with Painting in stucco, several apartments in the houses of wealthy individuals; and, as far as we can collect from Pliny, to him the Romans were chiefly indebted for the fanciful and grotesque taste with which these ornamental works were conceived. Many specimens of this description are to be seen at Pompeii, as also in the public Baths at Rome; and we know that from these Raffael, in after days, drew the ideas upon which his *arabesque* or *cinquecento* style was founded. Augustus seems to have been a considerable amateur; it was at his command that Apelles was employed in Painting at Rome. Some Pictures by Nicias also were placed in the Temples, and in the more conspicuous parts of the *Forum*, both by Augustus and Tiberius. Of the former we must presume, that he entered into the pursuit of the Art with all the enthusiasm of a private collector and *virtuoso;* for we are informed, that the curious sketch which Apelles left as a memento at the house of Protogenes, (as above related,) was purchased for the Imperial Palace. The Emperors Nero and Hadrian were not merely amateurs, but possessed considerable practical skill in Painting, and the latter in Sculpture also.

Thus we have briefly noticed the gradual developement of the Art of Painting, from the days of its earliest invention to the period of the decline of that, as well as of every other Art, under the Roman Emperors. We have yet, however, to speak of the degree of excellence that it had at one time attained. With regard to the testimonies given by authors who were the contemporaries of some of the above-named artists, they can be considered only as speaking of their relative merit, that is, of each individual as compared with others of his day, or, at the most, with those who had preceded him; and of course their expressions furnish no criterion by which we can ascertain the degree of merit they might claim, when put in competition with the works of the modern School. But we have some specimens of ancient Art open to our inspection, it will be said, and we may form our judgment upon them; still, however, there is this difficulty, that we do not know the repute in which the artists who executed them were held in their day. If, for example, the Pictures in the Museum at Portici, taken from the excavations at Pompeii and Herculaneum, are to be regarded as specimens of the best powers of the ancient artists, (though it seems hardly fair to expect so much in the embellishments of a remote country town,) we can at once pronounce a decisive opinion on the subject. They are certainly very inferior to the productions of modern skill, with regard both to colour and general effect; but it must be admitted that they have, at least some of the best of them, a purity and elegance of design such as none but the most eminent and most illustrious of the modern School have ever attained. The very elegant figure commonly known under the name of *The Dancing Girl of Herculaneum*, is an example of the best taste. *The Nereid riding on a Sea Monster*, (*Antich. di Ercolano*, ii. 46,) the two sitting female figures in the Picture representing the *Sale of Cupids*, (ibid. 38,) *The visit of Juno and Minerva to Venus*, (ibid. 11,) *Ascanius and the Nine Nymphs*, (ibid. 3, tav. 13,) *The Europa* wrought in Mosaic, in the Barberini Palace, and the *Apollo giving a chaplet to a Poet*, taken from the Baths of Titus, are specimens which may be said to be of the very first merit in point of design; certainly nothing better than the three first-named has been produced in after times, unless by Raffael or Corregio. It is well known, that, at the time of their discovery, certain ancient frescoes were actually attributed by some virtuosi at Rome (strangers to their history) to those very masters. (See quotation in Turnbull, *On Ancient Painting*, p. 4.) Raphael Mengs, too, expressly says, that he thinks the design of the Ancients was much superior to that of the Moderns; "because among the ancient Paintings that I have seen, many are as well designed as the best of Raphael, notwithstanding they were done at Rome when the Grecian taste was a little vanished." R. Mengs, p. v. ch. iii. As another instance of beauty of design, we may mention the figure of the Girl playing on the harp in the *Nozze Aldobrandini*, as they are called, the most valuable of all the specimens of ancient Painting that have been yet discovered; it has been frequently made use of by N. Poussin in his compositions, as those who are acquainted with his works will allow. Not only the figure of the Harp-player, but many others in that piece, possess inimitable ease and grace of attitude. In short, we may declare that in these figures we recognise all that charm and power of the Art of design, which the excellence displayed by the Ancients in the sister Art of Sculpture might have led us to expect in their Paintings. To this, however, we must limit our encomiums upon the Ancient School.

Excellence of ancient design.

School of the Ancients.

It is evident from the still remaining bright colours, scarlet, yellow, &c., which are seen on the walls of the apartments at Pompeii, that the colouring matter in general, as used by the Ancients, has lost little or nothing of its original freshness and vigour. Yet there is no science discoverable in their principles of colouring, as applied to their better Pictures; no richness of tint, no fulness of colour is attempted to be displayed; they have the harmony arising from universal meagreness and lowness of tone, but that is all. It is fair to add, perhaps, that real excellence in that line was scarcely attainable, until the invention of Oil Painting furnished newer and more promising methods of producing picturesque effect. As to the secret of Oil Painting, we are sure they were not in possession of it, from the story related on the subject of the Picture of *Bacchus and Ariadne* by Aristides the Theban; for this Picture was carried to Rome and placed in the Temple of Ceres, and M. Junius the Prætor having ordered it to be cleaned, previous to the commencement of the *Ludi Apollinares*, all its beauty was destroyed by the application of water.

Defect of colouring.

Oils unknown.

Sir Joshua Reynolds, in his comment on Dufresnoy's *Art of Painting*, makes the following remarks on the state of ancient Art, which are worthy of notice as coming from so great a master. "What disposes me to think higher of this colouring than any remains of ancient Painting will warrant, is the account which Pliny gives of the mode of operation used by Apelles; that over his finished Pictures he spread a transparent, liquid-like ink, of which the effect was to give brilliancy, and at the same time to lower the too great glare of the colour. '*Quod absolutâ operâ atramento illinebat ita tenui, ut id ipsum repercussu claritates colorum excitaret; et cum ratione magnâ, ne colorum claritas oculorum aciem offenderet.*' This passage, though it may possibly perplex the Critics, is a true and an artist-like description of the effect of glazing or scumbling; such as was practised by Titian

Opinion of Sir Joshua Reynolds on ancient colouring.

Painting.

and the rest of the Venetian Painters. This custom, or mode of operation, implies at least a true taste of that in which the excellence of colouring consists; which does not proceed from *fine* colours, but *true* colours; from breaking down to a deep-toned brightness those fine colours which would otherwise appear too raw. Perhaps the manner in which Corregio practised the art of glazing was still more like that of Apelles, which was only perceptible to those who looked close to the Picture, *ad manum intuenti demum appareret;* whereas in Titian, and still more in Bassano, and others his imitators, it was apparent on the slightest inspection. Artists who may not approve of glazing, must still acknowledge that this practice is not that of ignorance."

Examined.

Perhaps it is hardly fair to argue in favour of the general state of the Art, as Sir Joshua has done here, from a practice which Pliny states to have been a secret of Apelles alone, and known to no other artist; and there may, after all, be nothing more meant by the passage, than that he used a thin, transparent liquor, which he spread over the surface of his Paintings, in order to give them that depth of colour and general appearance of harmony, which such a process would naturally impart to a piece of dry colouring. Carlo Dati, indeed, in his Treatise *Della Pittura Antica*, translates the word *atramentum*, with a reference to this very passage of Pliny, simply as varnish; and it is obvious, that the use of a simple varnish would produce all that effect which Pliny describes; it would unite the clearness of the colours, as well as destroy their hardness. A varnish, indeed, which gave greater transparency than had ever been produced by the *encaustic* style of working.

Judgment of ancient Painters founded upon ancient criticism.

But we may assume, fairly, from the state of criticism exhibited in the writings of Philostratus, Pliny, or Quinctilian, or indeed any of the best informed ancient writers, that no great power was possessed by any of their Painters in the more artificial parts of the study. Unless we consider this passage of Pliny in the way in which Reynolds does, (which seems rather an overstrained interpretation,) there is nothing in any of their remarks which would lead us to suppose, that the delicacies and higher refinements of the Art were at that time known. Nothing can be more unartist-like than the general ideas expressed by these writers, and nothing less profound than their observations. They labour, like modern Commentators on the Classics, to display their own ideas rather than to illustrate the ideas of the author on whom they are employed, and present us with conceptions which could have originated only with themselves. The very course and line of their critical remarks is faulty; and as they were, no doubt, persons the best informed of their day, we must presume their ignorance was the natural result of the real imperfection of the state of the Art.

The works of Winkelmann, *On Ancient Painting*, and Junius, *De Picturâ Veterum*, are too well known to need mention here. In Turnbull, *On Ancient Painting*, much matter and several plates are given, illustrative of the imperfection of the Ancients in this department.

History of Modern Art

HISTORY OF MODERN ART.

Derived from Greece

As in ancient times the Italians drew all their stores of Art from Greece, so we find even as late as the XIth and XIIth centuries, which are times comparatively modern, that all the best Painters came from that country. There are, indeed, some specimens of the works of native artists of that period still in existence, such as the Paintings in the Crypt of the Cathedral at Aquileia, at St. Primerano, at Fiesole, and in St. Brigio at Orvieto; but, still, the chief artists of any *repute* (for we cannot say *skill*) were natives of Greece, who were almost invariably employed not only in Painting, but in Sculpture and Architecture,—in short, in all that passes under the name of the *Arts of design*. Whether in these times there were not some examples of native talent in Italy, has been made a matter indeed of question; some perhaps there were; but the point in debate is of very little moment: greater admiration is due to the production of excellent works, than of those the merit of which lies only in their antiquity; and here the case is clear, the modern Italians owe none of that skill and power which distinguished the Age of the revival of the Art to any foreign quarter, but they drew it wholly from the resources of native genius, and from exertions both excited and rewarded by themselves. The Greek artists, it is true, were driven in abundance to Italy, as the Mahometan power began to encroach upon the countries wherein they had lived, and they brought with them the mechanism of their Art: but this is all that can be said; the first Painters whose names deserve a place in History were Italians born.

Cimabue and Giotto.

First we must mention the names of *Cimabue* and *Giotto*, both Tuscans, who probably studied under the Greek artists, but enlarged the principles of Art, and carried on their labours with a new and bolder aim than their masters; and having succeeded in forming a new style, travelled throughout many parts of Italy, and disseminated their knowledge in every direction, laying the foundation of that fame which the several Italian Schools in time acquired. Cimabue died in 1300, Giotto in 1336.

Cemetery of Pisa.

Towards the close of the XIIIth century the then powerful Republic of Pisa designed a splendid cemetery, in which were to be entombed the most illustrious of her citizens. It was named the *Campo Santo*. The superstitions of the day led them to import earth from the Holy Land for the reception of the dead, and a spacious cloister was raised around this sacred ground, in decorating the walls of which the most distinguished artists of Italy were employed. First *Giotto* and *Buffalmacco* commenced this work, then the two *Orgagni*, *Laurati*, *Simon Memmi*, *Antonio Veneziano*, and *Spinello;* and in the following century we find the works of *Bennozzo Gozzoli* added to the number. This last displayed great originality of mind; and the grace and expression of his figures, which were designed after a manner hitherto unknown, show him to have been the greatest regenerator of the modern Art of design. These Paintings, which were all executed in stucco, are yet remaining in the *Campo Santo*, though they may be better known to the world by the engravings of Lasinio, an artist of Pisa, which possess considerable interest, from the proof they give of the comparatively advanced state of Art in Italy, at a time when its inhabitants were

Painting.

so uninformed and uncultivated in other branches of study. Still, we are not to suppose that the Art started at once to perfection, or that (however superior to the contemporary exertions of artists in any other part of Europe) these Paintings bore any proportion to those glorious designs of a succeeding Age, which now form the chief boast of the country. The following are the remarks of a man of sense and observation, and show us the effect these Pictures produced on a mind not learned in the Art, but still capable of forming a correct judgment of what was presented to its view. "They (the artists employed in the *Campo Santo*) betray a thin, timid, ill-fed pencil; they present corpses rather than men, sticks rather than trees, inflexible forms, flat surfaces, long extremities, raw tints, any thing but Nature. As you follow the chronology of the wall, you catch perspective entering into the Pictures, deepening the background, and then adjusting the groups to the plans. You see the human figures first straight, or rather stretched, then foreshortened, then enlarged: rounded, salient, free, various, expressive. Throughout this sacred ground Painting preserves the austerity of the Tuscan School: she rises sometimes to its energy and movement, she is nowhere sparing of figures, and has produced much of the singular, the terrible, the impressive;—but nothing that is truly excellent." Forsyth's *Italy*, p. 13.

XIVth century.

In the next Age we see great advance made in the Art by contemporary men of talents of a still higher order, and who seem to have mutually elicited fire from each other's minds, improving the general knowledge of the profession, and advancing its common interests by their honourable emulation and rivalry. Such were *Ghirlandaio*, *Paolo Uccello*, *Massaccio*, *Filippi Lippi*, &c. It was at this period that the study was first cultivated in a scientific form, and Ghirlandaio greatly improved the principles of Painting. His figures being grouped, and their draperies distinguished by just gradations, he contrived to give an air of depth in his works, such as had not yet been seen. These men flourished in Tuscany, chiefly indeed in Florence; but we are not to suppose from that circumstance, that that city was the only School of Art, or that the seeds of taste sown by Cimabue and Giotto had borne fruit in no other quarter. Rome boasted a great master in her *Pietro Perugino*; Venice had her *Jacopo* and *Gentile Bellini*; Padua her *Andrea Mantegna*; Bologna her *Francesco Francia*; all of whom, in their several lines, added to the gradually accumulating knowledge of the times. It is difficult for us to attempt to give an idea of the true nature of any style of Painting, by verbal expressions alone; but those who are familiar with the works of these *quattrocentisti*, as they are called, will recognise in them a strict and accurate portraiture of Nature, unembarrassed by any want of power in Drawing, and free from the seeming affectation of men who are unable to compass their thoughts. They are chiefly to be distinguished from the works of the following Age, by the absence of that ennobling of expression which resulted from the study of the antique, and the deficiency of that power of selection amongst the various works of Nature, which admitted only the most excellent and most perfect forms as fit to be painted. The figures of these *quattrocentisti* are generally meagre, or, at least, thin; as if they thought themselves unable to express grace, or to accomplish any expression otherwise than by adhering to the mode which gave an opportunity of showing their changes and variations in anatomical detail. These remarks apply to all the Painters of that day indiscriminately, whether of Florence, Venice, or Rome, &c.

Florentine School.

In the following Age, that is in the XVth century, arose *Michael Angelo*, *Raffael*, *Titian*, and *Corregio*; and upon their principles and their works were formed the chief styles of Painting which distinguish to this day the several Italian Schools; works which displayed a degree of vigour unknown either before or since, and fascinated us with an approach to perfection that has been the admiration of every Age. From this period therefore we must follow the History of Art separately in the several States of Italy, rather than attempt to combine that of all the Schools into one view.

XVth century.

Florentine School.

A History of a School of Painting is a narrative of the different Painters, and different styles or manners in Painting, which have obtained successively in any particular State or city. And we shall limit our inquiries to this point only. The Florentine School stands first in the catalogue, as much on account of its claim to antiquity of origin, as of the splendour it derives from the peculiar greatness of style which characterises the works of its chief professors. For this it is indebted chiefly to the transcendant genius of the great boast of Florence, Michael Angelo Buonaroti. That we may not, however, be carried too far away from the truth by the fascinations of this celebrated name, it is necessary to premise, that a certain degree of greatness of manner had already begun to distinguish the works of one who, though contemporary, was much his senior in point of age, namely, *Leonardo da Vinci*. This artist worked slowly, and finished his Pictures in the most laborious style, yet he never lost sight of that nobleness and freedom both of conception and style which elevate and dignify the Art. In the Picture of *Donna Lisa*, now in the Louvre at Paris, we see an example of his industry; for he was employed, it is said, during four years in painting it. And from the Painting of the *Last Supper*, of which a splendid copy by his scholar, *Marco da Oggione*, is now in the possession of the Royal Academy, we may learn, better than any words can inform us, how great were the merits of this master. He left Florence, it seems, for Milan, as early as the year 1499; and we may consider him, in regard to Schools of Art, as having exerted still more influence on the general taste and fashion of the artists of that city than of those of Florence.

Leonardo da Vinci.

The first occasion on which *Michael Angelo* exhibited his talents in this department of Art, was in a spirited representation of the *Battle of Pisa*, with which, although a young man, he was employed to decorate the Hall of the Council at Florence, jointly with Leonardo da Vinci, who was then in the zenith of his fame. A copy of this work, said to be from the hand of his scholar Vasari, is preserved at Holkham, in Norfolk, the seat of Mr. Coke. The great sensation, however, that was excited by this, as well as his inimitable works as a Sculptor, caused him to receive a call to Rome during the reign of Julius II., in the year 1504, where he soon attained the highest eminence, and displayed the most gigantic powers of genius that had yet been known to the world. The ceiling of the Sistine Chapel, and the *Day of Judgment*, as also the *Stoning of Stephen*, and the *Conversion of St. Paul*, in the Pauline

Michael Angelo Buonaroti.

Painting.

Chapel, as works of the pencil; and the *Pietà* in St. Peter's, and the Monument of Pope Julius in St. Pietro in Vincoli, in sculpture, sufficiently attest the powers of this wonderful man.

"The figures of M. Angelo are less Classical and studied in their form than those of Raffael, and though filled with equal, or perhaps sometimes superior force of expression, are yet more natural. Nevertheless, to call them purely natural, would be to give a poor idea of his excellence; it is seldom in Nature that we see personages who move as his figures seem to do: there is a species of internal intelligence exhibited by their external attitude, that few persons in common life appear to possess, and there is a degree of impressiveness in their air, that arrests and fearfully rivets the attention." (James's *Italian Schools*, p. 111.)

As to specimens of his style in Painting, there are few works in existence beyond those above mentioned which can be authenticated as genuine; but in the works of his best pupils and imitators, such as *Pellegrino Tibaldi*, *Sebastian del Piombo*, and *Daniel di Volterra*, we may trace the elements of what the Italians justly name *il grande gusto*. Michael Angelo is said to have furnished the design of the *Taking down the Body of our Saviour from the Cross*, which was painted by Daniel di Volterra for the Church of the Trinità di Monte at Rome; the engraving of which by Dorigny may be quoted as a specimen with which the Tramontanes are generally familiar; while we have, in the invaluable Picture by Sebastian del Piombo, in our National Gallery, a still more tangible illustration of the force of conception, and dignity of manner, inherited by the pupils of this great master.

His pupils.

We are not, however, to suppose that he was the only Painter of eminence at that day at Florence; we have mentioned the name of Da Vinci, and we may also add those of two other Painters, scarcely inferior to him, *Fra. Bartolomeo di S. Marco*, and *Andrea Vannuchi*, called, from his father's profession of tailor, *Andrea del Sarto:* both of whom had Schools of Painting, and numerous followers, at Florence. Of the former, there are but few specimens in England which can give a fair idea of the noble simplicity of his composition. They are formed of few figures, seldom more than three, and mostly of a size larger than Nature.

Bartolomeo di S. Marco. Andrea del Sarto.

Andrea del Sarto added another grace to the Florentine manner; his works partake, indeed, in every way, of what is called greatness in point of style, but it is combined with a certain suavity and gracefulness, which infinitely heightens the pleasure we receive in their contemplation. As far as he was an imitator of the manner of M. Angelo, he will be observed to have caught the feeling which that master showed in some of his earlier works in marble; that of the *Pietà*, for instance, in St. Peter's at Rome, or that more subdued conception of the beauty of form, which may be discovered in the Picture of the *Creation of Eve*, in the ceiling of the Sistine Chapel, and in some other of the compartments. His mind was naturally averse to that terrible sublimity of ideal Nature, with which, in later years, the mind of Michael Angelo seems to have been absorbed. The finest Painting of Andrea del Sarto is the *Madonna del Sacco*, as it is called, in the cloister of the Annunziato at Florence, an engraving of which is published by Volpato. We have a few Paintings of this master in England; but those who have seen only his early Pictures can form no conception of the greater talents which were developed by him in his works in fresco.

Florentine School.

Towards the middle of the XVIth century there arose among the Florentine artists a style which was rather imitative of the more unessential peculiarities of Michael Angelo, than of his dignity and force; there is a certain heaviness, and empty ambitiousness of design, in the works of his scholars and imitators in general, but still we trace the remains of that noble spirit with which this great man inspired the Florentine artists. Of these we may make mention of *Giorgio Vasari*, the Historian of the Florentine School, who was much employed by the Pope at Rome, as well as by the House of Medici at Florence; *Lazzaro Vasari*, his brother; *Marcello Venusti*, who also settled at Rome; *Rossi*, or (as he was called from the name of his patron) *Rossi dei Salviati; Marco da Pino*, who lived chiefly at Sienna; *Jacopo Carucci*, (*alias Pontormo*,) of whom Michael Angelo is said to have prognosticated greater talents than he ever lived to display; *Rhidolfo Ghirlandaio*, descendant of the master of Michael Angelo; and *Pierino del Vaga*, a native Tuscan, who became the pupil of Raffael. We see the remains of Michael Angelo's style kept up, though in a still lower state of degradation, in the works of the pupils of these men, such as were *Angiolo Bronzino*, *Jacopo del Conte*, *Alessandro Allori*, *Zuccaro*, &c.

XVIth century.

With regard to colouring, we cannot trace many symptoms of improvement until the days of *Cigoli* and *Pagani*, about the end of the XVIth century. Cigoli was a Poet as well as a Painter and Musician, and certainly succeeded in introducing a greater softness of manner, and higher brilliancy of colouring, than the Florentines had hitherto been accustomed to see. We may say, indeed, that this taste accorded better with the feelings of the Age in regard to these matters, at a time when the *bouquet*-like Paintings of Baroccio were generally rising into fashion throughout Italy. It was then that colouring, not expression, became the chief object of the Artist.

Great skill with regard to the management of colour appears in the works of another master of that day, namely, *Carlo Dolce*, who attained high reputation, and had, like other great artists, his scholars and imitators. There was now no longer a demand for large Paintings as formerly in fresco, by means of which the Heroic style of Painting, if it may be so called, had been created and fostered from its birth; they were easel Pictures that were chiefly sought after by the wealthy. Yet *Francischini*, *Jacopo Empoli*, *Giovanni di S. Giovanni*, who belong to this period, are respectable names even among the Painters of large works, or *opere di machina*, as they are called.

Carlo Dolce

After the middle of the XVIIth century a rich and harmonious style of colouring, and the more pleasing graces of Art, were brought more and more into fashion. *Pietro da Cortona*, who came to Florence from that city, which gives him his name, was engaged in the decoration of the Pitti Palace; and this public employment alone was enough to give currency to the style which he introduced at Florence. Of succeeding Florentines, none attained more celebrity than *Gio. Bat. Cipriani*, a name well known in England, both by his Pictures and the engravings made after them; elegance and beauty are their chief characteristics, and we see nothing of the original greatness of manner that once so proudly distinguished this School. The present Academy of Florence offers no remarkable

XVIIth century.

Pietro da Cortona.

Cipriani.

Academy of Florence.

Painting.

distinctions of style and manner; but its professors are fully equal to those of Rome or Bologna, or Venice, and conceive their designs in that dramatic fashion which may be said now to be common in all parts of Europe. A very interesting Historical collection of Pictures, illustrating the different masters of Florence, and all the glories of their line, is preserved in their establishment in that city.

Roman School.

The Roman School comprises an extensive variety of styles, as all the Painters of eminence, from all parts of Italy, were attracted in succession by Papal patronage to the Eternal City. But the Roman manner, properly so called, is that of Raffael and his followers. With him, therefore, we commence its history.

Raffael.

Rafaello Sanzio da Urbino was born in the year 1483; he first studied Painting under his father, Sanzio, a tolerable artist, a specimen of whose style is still preserved, for the inspection of the curious, in the Brera at Milan. He next was placed under the tuition of an artist of great merit, Pietro Perugino, but he soon excelled his master: Pietro, indeed, only sought to give a true and faithful copy of Nature as she presented herself; while the ardent genius of his pupil aimed at a style drawn from the observation and selection of her excellencies only. Leaving Perugino, Raffael paid a visit to Florence, where the first objects that attracted his attention were the works of Massaccio, in the Church del Carmine; from these he began to acquire a little of that taste for the antique, which afterwards so much distinguished his character: and here it is, says Mengs, we find him "laying aside the style of broken and short folds of his late master." In a second visit to Florence, he seems to have been greatly taken with admiration of the style of Michael Angelo; and the new insight into the nature of his Art, which he derived from the view of that great master's works, taught him how necessary it was to abandon that mechanical manner which had distinguished all the artists of the last Age. He is supposed also to have gained great advantage as to his views in Painting, from the acquaintance which he then formed with the celebrated Fra. Bartolomeo di S. Marco.

"Being returned to Urbino he soon made known his progress, and discovered his new taste in a Painting of the *Deposition of our Lord*, painted in a Chapel. He was invited on that account by his uncle, Bramante, to go to Rome, where he was commissioned to paint in the new apartment, called *Di Borgia*, or *Della Segnatura*. He there began (according to different writers) by the four circles of the ceiling, in which he still preserved, as is very observable, much of the style of Father Bartholomew. This, however, pleased so much, that the Pontiff ordered the Paintings of the other Painters who had painted upon the walls to be cancelled, not being able to reign in competition with Raffael. He began, therefore, to paint one of the walls, representing the meeting of the Doctors of the Church, or, as it is generally called, the Painting of *Theology*, with the Trinity above, and with the Patriarchs intermixed with other Saints and Angels. The time in which he lived, and the little experience of his age, which could not be more than twenty-five years, made him renew the ideas of Perugino, from whence he drew the rays of light in gold relief, and there strung Angels and Cherubims, with other similar extravagancies. All the parts of that Painting are done with the highest attention, and one sees that he began with the right side, and terminated by the opposite. The parts which are towards the first side, one observes to be dry, painted therefore with diligence, and well impasted with colours; scarce any thing is retouched, and it is there one discovers the taste of Father Bartholomew. One sees that all the parts are taken from Nature; that is, copied from designs done from Nature; but the more the work advances, the more one beholds the successive progress of his good style, and one discovers also that, surmounting every timidity, he worked with more liberty." Raphael Mengs, *Remarks on the Style of Raphael.*

Roman School.

These remarks are valuable, as coming from one who was himself a very distinguished Painter, and one the greater part of whose early years had been consumed in constant and unremitting study of these works, so that no writer could be more competent to give an opinion upon them. The father of R. Mengs, indeed, is said to have obliged him to copy some of the Pictures by Raffael in the Vatican, no less than twenty several times. We must here observe, and the observation will be easily allowed by all who are familiar with Volpato's engravings of these subjects, that the *Borgo Incendiato* displays some little approximation to the style of composition and design before mentioned, as peculiar to the Florentine School, and the imitators of Michael Angelo: but in the rest of the noble works which adorn the *Stanze di Raffaello*, we trace the gradual formation and introduction of that new and peculiar style, which was from this day to become the pattern of the Roman School. Perhaps the *School of Athens*, in fresco, and the canvass Picture of the *Transfiguration*, may be quoted amongst the most illustrious and most perfect specimens: but in every figure that comes from the hand of Raffael, we mark that happy combination of grace and expression with dignity of form and manner, which has raised him to a reputation unequalled by any succeeding master. The *Cartoons* are familiar to all people in England, and afford us an admirable idea of the true Roman manner of design.

Raffael was assisted in his fresco Painting in the Vatican by a numerous band of scholars and followers; they executed, indeed, from his designs, the greater part of the works which boast his name. Raffael and his style now became the fashion of the day, though in some sort a rivalry existed between him and the still greater Michael Angelo; and sometimes a good deal of acrimony was displayed by their respective partisans. But all this tended to the general advancement of the Art; for upon the capture of Rome by the troops of the Emperor Charles V., the scholars of Michael Angelo, and those also of Raffael, who were far more numerous, flying thence were dispersed over all parts of Italy, and carried with them and disseminated the various principles of Art which they had imbibed from these two master-spirits of the Age. Thus *Pippi*, or *Giulio Romano*, as he is called, returned on this occasion to his native place, Mantua, where he set up a School of design, after the fashion of his master Raffael; *Benvenuto Tisi*, or *Il Garofalo*, did the same at Ferrara; *Gaudenzio Ferrari*, again, at Milan; *Pellegrino da Modena*, again, at that city; *Bagnacavallo* at Bologna; *Penni*, (*Il Fattore*, the steward of Raffael,) with *Polidoro Caravaggio* and *Perin del Vaga*, also taught the Raffaelesque style at Naples; and the last-named, who finally took up his residence at Genoa, communicating a new

His pupils.

Painting.

spirit to the artists of that wealthy place. There were others, again, of his pupils and followers, who continued their residence at Rome, chiefly employed in finishing many imperfect works of Raffael, who was carried off by death at the early age of thirty-seven; nor, indeed, did they ever feel the want of engagements, while those were yet living who had known their master's merit. Of this class were *Raffaello del Colle*, *Timotheo della Vite*, *Vincenzio da S. Gimignano*, *Vincenzio Pagani*, and *Giovanni da Udine;* the last-named being chiefly celebrated for his skill in designing the arabesque style of decoration, or *cinquicento*, as it has been called; a taste for which had been introduced by Raffael, being chiefly formed upon the antique remains discovered in the Baths of Titus.

As the taste of succeeding Popes varied one from the other, and as, in addition to this, there was an ever restless spirit of intrigue amongst those by whom the Popes were surrounded, it is not to be supposed that the followers of Raffael always maintained their ascendancy, or were constantly the subjects of exclusive patronage. First *Giulio Romano*, and then *Perino del Vaga*, had been promoted to the great object of professional ambition at that day, namely, the superintendence of the works carrying on at the Vatican. After these came *Daniel di Volterra*, the scholar of Michael Angelo, who introduced again the Florentine style; while, after a few years, the Raffaelesque manner was revived by the employment of *Frederico Zuccaro*. Though, we must confess, this last was but a very feeble and inefficient artist, yet he was a man of considerable influence in his time; and it is to his exertions that the Romans are mainly indebted for the establishment of the celebrated Academy of St. Luke, for the benefit of native artists.

Zuccaro.

The next work of importance which was undertaken by the Popes, namely, the ornamenting the interior of St. Peter's with designs executed in Mosaic, was intrusted chiefly to Florentine artists, who thus became once again in fashion. There were also Schools of Painting, of considerable reputation at the beginning of the XVIIth century, established at Rome by *Muziano*, *Raffaellino da Regio*, and the *Cavalier d'Arpino;* and these too, for a while, exerted an influence on the public taste, and claimed a share of popular admiration.

XVIIth century.

But the chief and most splendid novelty which appeared after the day of Raffael, was the brilliant method of colouring adopted by *Baroccio*, who embellished the Roman manner by the introduction of a vivid, one might almost say a spotted, style, united with something of that graceful mode of design which had first been seen in the works of Corregio. But this ingenious and deserving artist was driven away from Rome by the envy and jealousy of his contemporaries; he died in the year 1612, as is generally supposed, by poison.

Baroccio.

Caravaggio.

M. A. Caravaggio also obtained great success at Rome by the invention of a new style: his peculiarity was the use of a dark background to his figures, which gave them a strong and forcible relief. Great was the admiration it excited; and hence he had many followers. A Flemish artist, by name *Honthorst*, or *Gherardo delle Notte*, and also *MM. Valentino*, and *S. Vouet*, both natives of France, painted after the fashion of Caravaggio with great success at Rome.

His followers.

But that which most occupied the public attention at the beginning of the XVIIth century, was the novel manner of design adopted by the family of the *Caracci*, at Bologna. They formed themselves after the purest principles of Nature, in opposition, as it were, to the Classic styles of Raffael and Michael Angelo; and as they gave great force and expression to their Pictures, they succeeded in rivalling the most admired productions of the previous century. This new manner was first shown to the Roman Public in the Paintings executed for the Cardinal Farnese, in his Palace, which is to this day one of the greatest boasts of the city. Being once known and approved in the Papal Metropolis, the taste for their style soon became very general throughout Italy; and the magnificent productions of the scholars of the Caracci, who soon followed their master to Rome, such as the *Aurora* of *Guido*, and the *St. Jerome* of *Domenichino*, sufficiently attest the nature of their success, and the merit of their inventive powers.

Roman School.

The Caracci

Guido.

Domenichino.

Lanfranc of Parma, the Painter of the Cupola of S. Andrea della Valle, and *Guercino*, the Painter of the *Aurora* at the Ludovisi Palace, illustrated this period, and contributed many specimens of their skill to adorn the Palaces of the wealthy Nobles of Rome. Indeed, at no time were there more men of genius and talent attracted to that city, than during this and the succeeding Age. By the time we have arrived at the middle of the XVIIth century, we find the names of *Salvator Rosa*, from Naples: *Claude Lorrain*, and *Elsheimer*, from Germany; *Anton: Tempesti*, from Florence; the two *Poussins*, from France; *Velasquez*, from Spain; and *Vandyke*, from the Low Countries; all of whom left behind them numerous works, which are numbered to this day amongst the rarest treasures of Rome.

Pietro Berrettini da Cortona, a Tuscan by birth, was the next person who may be said to have had an influence on the taste of the day. He came into favour at the Papal Court, chiefly in consequence of his interest with the sculptor Bernini; an able artist in his way, but who may be said to have introduced much the same sort of pleasing diffusiveness of style into the Art of Sculpture, as his *protegè* displayed upon the canvass. P. Cortona was in favour under the reigns of Urban VIII. and Innocent X., and has left a rich specimen of his taste in design, in the celebrated painted ceiling of the Barberini Palace at Rome. He died in 1670; and we may mention as one of his best followers the name of *Ciro Ferri*.

Pietro da Cortona.

Ciro Ferri.

Contemporary with him, and superior in merit, though less the favourite of fame and fashion, was *Andrea Sacchi*, a man of undoubted genius, and who would, if duly patronised, have shed more honour and lustre on the declining days of the Roman School than any other Painter of this period. We must look, however, to still more degenerate days, when his pupil, *Carlo Maratta*, as was the case a short time afterwards, became the leader of the public taste, and the idol of the profession. The style of this master is singularly heavy and dull; and yet towards the end of the XVIIth century, at which we are now to consider ourselves as having arrived, he was regarded as the best artist in Italy; many of his Pictures have been engraved, and they need no comment, they speak for themselves.

Andrea Sacchi.

Carlo Maratta.

Raffaelle Mengs succeeded; a native, it is said, of Saxony, but who was naturalized by long residence at Rome, and still more so, by a long course of Roman

Raffaelle Mengs.

Painting.

study. He possessed unwearied diligence, and at least so far deserved success, though he had no kind of pretension to that fire of genius and originality, which had formerly been supposed necessarily to belong to one who was the leading artist of Rome. In his Pictures, however, he exhibited great delicacy and elegance of colour; nor was his design void of grace; but beauty rather than greatness of manner was his aim, and in this he was successful. The traveller in Italy will remember his Paintings in the Villa Albani. *Pompeio Battoni* was an artist of the same stamp, though much his inferior; and the modern School of the present day is generally formed after the same fashion. *Camuccini* is perhaps the most eminent amongst its disciples.

Battoni.

Camuccini.

Venetian School.

Venetian School.

Under the title of the Venetian School are generally comprehended all those artists who flourished in the territories of the Venetian Republic on *terra firma*, as well as those of Venice itself. If, therefore, we were to enter into every branch of Historical research to which we might be led in this wide field, we should wander amidst early details of various incipients in Art, among numerous petty States, which would be viewed with little or no interest. We may observe, therefore, that as the Venetian School dates all its splendour and fame, and most of its distinguishing characteristics, from the days of the great Titian, the contemporary of Raffael and Michael Angelo, the founders of the Schools of Rome and Florence, its real History commences with him. Lest we seem to pass over this period too lightly, we will just remark, that a taste for Art had even before his day displayed itself in these parts; that at Vicenza and Verona we find the names of *Liberale*, *Il Marescalco*, *Merone*, *Montagna*; at Bassano, some of the earlier artists of the family of *Da Ponte*; while at Padua a famous School was formed by *Squarcione*, where no less a person than *Andrea Mantegna* received his education, who was largely and honourably employed, both by Pope Innocent VIII. at Rome, and by the reigning family at Mantua. In Venice itself, too, even at this early period, we find *Giovanni* and *Gentile Bellini*, and *Vittore Carpaccio*, exhibiting great diligence in the prosecution of the Art, and exciting the public attention by their efforts. The Government indeed thought it of such consequence to encourage the School, that it purchased for it the secret of the newly discovered Art of Painting in oil, or, to speak more correctly, the improved method of Painting in oil, which had been brought from Flanders by *Antonello di Messina*; and a specimen of his painting made for this purpose, is now preserved in one of the public buildings at Venice. Of the style of design adopted in this day, we have before spoken, and have only to add, that it is remarkable that even at this early period the attention of the Painters was directed more especially to the improvement of their system of colouring, than to the other points of excellence, and in that respect they were already advanced far beyond any of the other Italian professors. It would be unjust, however, to pass in silence the merits of so great an artist as *Giorgione*, the pupil of *Bellini*, who in the course of a short life attained to such a degree of perfection in colouring, as excites the highest admiration even at the present day. He is said to have been the first artist who introduced the fashion of decorating the exterior walls of houses with painted figures; and some specimens, traditionally assigned to him, were till within these few years to be seen at Venice: one or two of them were engraven by *Zanotti*. As the easel Pictures of Giorgione were very few, it is rarely that we meet with his works in the cabinet of the amateur. He died at the age of thirty-two, just when *Titian* was advancing to the zenith of his reputation. The length of this last-named Painter's life, for he lived ninety-nine years, greatly contributed to his advancement of the Art at this early period. Titian died A. D. 1576.

Giorgione

Tit'an.

"Titian displayed much of the *beau ideal* even in his colouring, and though his design possesses much of dignity and expression, yet it was in this he chiefly excelled, and to the perfection of which, rather than of any other branch of practice, that his attention was chiefly directed. He knew perfectly well, from having made it the object of his study, the characters and degrees of each colour, as also the proper place in which to apply them. The science of placing a red cloth in preference to a blue one, is not so easy as is imagined; and this is what Titian understood in the highest perfection. He likewise very well knew the harmony of colours, which is in part ideal, and which one sees not in Nature, if it be not first comprehended in the Imagination." Raphael Mengs, p. iv. ch. v.

The Portraits painted by Titian (or *Vecelli*) are now regarded as the most masterly examples of skill in that department of the Art. His Historical compositions are some of them of a rank scarcely inferior; and such was his universality of talent, that even when he turned his pencil to Landscape Painting he succeeded in that also. As a strong proof of the esteem in which he was held at Venice, even during his lifetime, we may relate that he was by a public decree of the State exempted from taxation; and this honourable fact affords us evidence enough of the generous ardour with which the Arts were at this day encouraged. That a Prince should become a patron, is no more than natural from the feelings of the individual; but that a Republic should publicly reward talent of this description, is attributable only to motives of the most enlightened and exalted liberality. Titian had several brothers who also followed the profession, and whose names, and consequently their works, are sometimes improperly confounded with his. The scholars of Titian and imitators are, however, of more consequence to our inquiry. Of these *Jac. Robusti*, better known under the nickname of *Tintoretto*, (the dyer,) stands first in point of eminence. The object at which he aimed was one that required no ordinary boldness of mind to attempt; it was nothing less than to unite the noble skill of design of Michael Angelo with the rich and graceful colouring of his master Titian, and he has to a certain extent at least succeeded in his aim. It is indeed chiefly by the general air of greatness of style in his compositions, that his Pictures may be easily distinguished from those of other masters of the Venetian School. But let it be observed, that the easel Pictures by this master, which usually find a place in every collection throughout Europe, will serve to give a very feeble idea of the powers of his mind; it is at Venice alone that the connoisseur is enabled to form a due estimate of the merits of Tintoretto. He, too, had his scholars and followers, amongst whom may be reckoned not only many Venetians but also *Rothenamer* of Munich, *Martin di Vos* of Antwerp, and several other north countrymen.

His Pupils.

Tintoretto

Next in point of reputation stands *P. Cagliari*,

Painting. Paolo Veronese.

or *Paul Veronese* as he is more usually called, for his residence was at Verona. His style is more brilliant and diversified in point of colouring than even that of Titian; but he possesses none of the greatness of design belonging both to him or to Tintoretto. The same air of ease and profusion which distinguish his system of colouring, are seen to pervade the character of his design; all that comes from his pencil is rich, harmonious, and free. He may be easily discernible amidst all the other leading masters of this School, by the intrusion into his composition of a black-faced Moor, or a Venetian nobleman or lady, or a dog; all of which, though introduced in direct contradiction to common ideas of propriety and truth, yet in his hands are so admirably managed, as never to appear unpleasing or unnatural. The *Farinati*, *Brusasorci* and their School, the family of *Del Moro*, were amongst his best scholars. We may add the name too of *Batista Zelotti*, who perhaps approached the nearest to his manner of any, and whose Pictures are often confounded with his.

Bassano.

Jacomo da Ponte, or *J. Bassano* as he is more commonly called, together with his brothers and his sons, formed a large School at the city of Bassano. They all painted much in the same manner, that is, with dark backgrounds and sharp, cutting lights; but it must be allowed, that from this practice, combined with the Venetian mode of colouring, resulted the most harmonious, rich, and mellow effects that can be produced on canvass. Bassano, in fact, seized upon a species of effect which is sometimes to be remarked as produced in this fashion in one or two Pictures of Titian; and building a manner upon these, perhaps, almost accidental examples of his master, appropriated and made it his own. Other illustrious names besides these are to be found among the scholars and imitators of the great Titian, such as *Paris Bordone*, *Il Pordenone*, (*A. Licinio*,) *Bonifazio*, *Andr. Schiavone*, *Aless. Bonvicino*, (or *Moretto di Brescia*,) who also had his School at that city. In the following century an inferior race sprang up; still, followers of Titian, still, admirable colourists, but betraying both in the principles on which their system of colour is conducted, as well as in their general design and conception, that littleness of mind which always belongs to the imitative class. Of these, *Palma the younger* may be mentioned as having attained the highest reputation. We might add the names also of some other Painters not unknown to fame, and who owed their success, in great measure, to their happy method of combining with the peculiarities of this School some of the novelties of style, which we have elsewhere said became fashionable in the course of the XVIIth century throughout Italy. Such were *Cantarini* and *Tinelli* at Venice; *Dario Varotari* of Verona; and *Alessandro Varotari*, or *Il Padovannino*, a name which he attained from his School being removed to Padua, where it became one of the most celebrated of the day; in saying, indeed, that *Pietro Liberi* was one of its ornaments, its excellence is sufficiently proved.

Palma.

XVIIIth century.

In the XVIIIth century we find few names of any great account among the Venetian Painters: yet those who attempted, after their fashion, to redeem the lost fame of the School, chiefly showed their talent in the same line as their predecessors, namely, in the art of colouring. *G. B. Piazzetta* and his scholar *Tiepolo*, as well as *Sebastiano Ricci* painted, it must be admitted, though not in the great style, yet with much spirit and beauty. And no individual, certainly, ever contributed to make the scenes of his native city more familiar to the eyes of the rest of the world, than the last great Painter of Venice, *Antonio Canal*, (or *Canaletti.*) His richness of tone and colour in his best Pictures stands unrivalled in its way: nor does he deserve less praise for the decision and firmness of his touch. There are two of his followers, *Marieschi* and *Guardi*, whose Pictures are sometimes sold under his name; but those of the former may easily be known, by their timidity of touch, and heaviness of colour; those of the latter, by his frequent use of hard lines, to give precision to his buildings and figures, resembling the marks in pen and ink sketches.

School of Bologna. Canaletti.

School of Bologna.

The works of *Francesco Francia*, a contemporary of Raffael, will always be the subject of great admiration with the amateur who pays a visit to the city of Bologna, and not less so because he will seldom have heard the name before; nor will he less admire, perhaps, those of *Ramenghi*, (or *Bagnacavallo*,) a pupil of Raffael, and the frescoes of *Pellegrini Tibaldi*. This last was the pupil of Michael Angelo, and one who, had he persevered in the Art of Painting, might have risen, if we may guess by what he has left behind him, to the highest possible eminence. He certainly possessed a great part of the sublime conception of his master, while at the same time he had the taste and sense to avoid his extravaganeies: he is usually called *Il Michael Angelo riformato*. He was also an Architect, and designed the Cathedral of Milan after a semi-gothic fashion.

Francia. Tibaldi

Primaticcio and *Nicolo del Abate*, who afterwards left their country to prosecute their fortunes under the French Court, also belong to the early days of the School of Bologna. But this city owes its chief fame, as is well known, to the family of the *Caracci*, who began in the XVIIth century to attract universal attention, and finally gave the law to the rest of the Italian Painters. The style they introduced was formed from the study of Nature; and in this respect is opposed to the more learned and Classical manner of Raffael and M. Angelo, which hitherto had been in the highest repute. It was not, however, pure Nature which they cultivated, but rather Nature assisted by all the picturesque science which had been brought to light by the sagacity of the preceding Ages: for the example of each of the more eminent of their predecessors was recommended in the instructions which the Caracci gave to their pupils. *Ludovico Caracci* (whose Picture of his family is now to be seen in the Library at Christ Church, Oxford) was the first to commence this new era of the Art; but he was ably supported by his cousins *Agostino* and *Annibale*. It was from their benches came the most distinguished Painters of this Age, and to the truth of the principles which they inculcated we owe some of the most brilliant specimens of Art. *Domenichino*, the Painter of the famous *Communion of St. Jerome*; *Guido*, the Painter of the *Aurora* in the Rospigliosi Palace at Rome; *Albani*, the graceful Painter of women and children; *Lanfranc*, a Painter of frescoes and *opere di machina*, as they are appropriately termed in Italy: all these were the scholars of the Caracci, and from the wonderful talent they exhibited, were soon called to share the patronage of the Papal Court at Rome. Once established there, they too had severally their Schools and their scholars, and contributed in their

The Caracci. Domenichino. Guido. Albani. Lanfranc.

Painting.

turn to form a fresh supply of vigorous artists, and carried down to a third generation the principles of the School of the Caracci.

Guercino.

Guercino was a native of Cento near Bologna, but it is not known that he ever studied under the Caracci, though his manner approaches so near to theirs, that (as he was their contemporary) it has often been so suspected. His particularity of style chiefly lies in an happy method of scattering and interchanging his light, and still preserving his harmony. In his design there is a grace that approaches sometimes nearly to that of Guido; but he is generally very faulty in the drawing of the hands and feet, and this is a mark whereby his Pictures may be known. Both these masters for a certain period of their lives adopted the fashionable, and then novel manner of Caravaggio, by introducing a black background in order to force out their figures.

Some of the School of the Caracci remained behind at Bologna, and attained a very high reputation, which will be seen to be amply merited by their works remaining at this day in that city. Among these may be named *Tiarini*, *L. Spada*, *Cavedone*, and *Il Gobbo de' Caracci*, an *élève* of that family, a Painter of fruits, &c.

Carlo Cignani may fairly be said to have maintained, even so late as the XVIIIth century, something of the original character of the design of the Caracci, or rather he followed their style, such as it became in the hands of Guido, and met with well deserved honours as a Painter. *Gioseffo del Sole* also, and *Passignani*, had Schools under them of much reputation. In the next generation, *Francheschini* and *Crespi*, the scholars of Cignani, were the most in repute. And even at this day, while we notice a very curious and valuable series of Bolognese Paintings in the Academy at Bologna, we must not forget, that there are also many living professors of the Art of considerable talent, still zealously pursuing the great line of Historical Painting.

Other Italian Schools.

In the valuable history of the Italian Schools by the Abbé Lanzi, the account of no less than fourteen is historically detailed: they are not, however, or at least ought not to be, reckoned Schools in the same sense in which the preceding four are so named. He gives us, in fact, no more than a narrative of the efforts made in the prosecution of this Art by the other chief cities of Italy, but in which no general style and manner was ever promulgated, nor did they ever give the law in Art to the rest of their countrymen. Of these the History of *Parma* should stand first, in regard to the merit and reputation of its Painters. The style of *Correggio*, (or *Allegri*,) the great boast of this city, was, if ever such an assertion may be made of any one, purely his own. His example, however, exerted but little influence on others, and his style was soon supplanted by the introduction of foreign novelties.

School of Parma.

Correggio.

Correggio's style is the favourite theme of Raphael Mengs, nor can we do better here, perhaps, than quote the following passage from his writings. "In Correggio one finds a spirit mild and soft, which gave him an aversion to all that which is too powerful and expressive, and made him choose only such parts as were pleasing and tender. He began to study almost only the imitation of Nature; and since he possessed more a graceful and pleasing genius than a perfect one, he found out the way at the beginning, by means of uniformity, and depriving his drawing of every angular and acute part. He drew his outlines in a serpentine manner. In general his design was not too just, but great and pleasing." p. 11. ch. vi. Mengs adds a remark too which is not void of a certain degree of sagacity, namely, that he should not advise any artists to study Correggio, unless they felt they had a sensibility like his; a remark that may be extended to many other cases of imitation. "When a Painter," says he, "in the meantime that he invents can transform himself, as one may say, into that which he would wish to imitate, he will imitate well; if he cannot, it will always be better to follow that which he feels of himself," i. p. 67.

Other Italian Schools.

The chief Paintings by Correggio are the frescoes which adorn the Cupola of the Cathedral at Parma, and that of the Church of San Giovanni, at the same place; there are, besides, some other splendid Paintings in fresco by this master to be seen at Parma; as to his easel Pictures, though they are to be found scattered through all the great collections in Europe, no one being held complete without such a specimen, yet we may particularize the Royal Gallery at Dresden, as being the richest in this respect, and possessing his best productions. The two cabinet pieces placed in our British National Gallery are beautiful in themselves, but too small to give any just idea either of the greatness of conception which distinguished Correggio, or yet of the graceful beauty and peculiar fleshiness of his forms. Of this master perhaps may be said with justice, that he combined in himself more of the qualities requisite to form the perfect Painter than any other man upon record.

Parmegiano, (or *Parmegianino*, as he is generally called in Italy,) though inferior to Correggio, was in some respects an inheritor of his talent, but he rather caricatured the spirit of gracefulness and elegance which he studiously sought to imitate.

Parmegiano

The name of *Lanfranc* deserves a place here; for, though afterwards a follower of the Caracci of Bologna, his style was first formed at his native place Parma, and chiefly from the imitation of the works of Correggio. His greatest work was the Painting in the Cupola of St. Andrea della Valle at Rome.

Lanfranc

The great boast of *Sienna* is *Giantonio Razzi*, commonly known by the name of *Sodoma*: his easel Pictures are few in number, and therefore his name is not so familiar to the world as it deserves to be; wherever they are to be seen, they will always be acknowledged as the works of a first-rate master. He was one of those artists who were called to Rome, and employed by the Pope in adorning the chambers of the Vatican Palace, and whose Paintings were effaced by order of Julius II., when the commission to paint the *Stanze*, as they are called, was transferred, on account of his extraordinary merit, to Raffael. There is a fresco Picture by Sodoma, in the cloisters of the St. Caterina at Sienna, which marks him as being, if inferior, nevertheless inferior to Raffael alone. *St. Catherine* fainting in the arms of her attendants is one of the most successful pieces in point of expression, simplicity, truth, and delicacy of feeling, that ever was produced.

School of Sienna. Sodoma.

The designs of his scholar *Beccafumi*, executed in *pietra commessa* (or marble inlaid) on the pavement of the Cathedral at Sienna, are also conceived in a grand and classical style.

Baldasar Peruzzi, Architect and Painter, as well as

Painting.

Marco da Pino, were also of Sienna; and in more modern times we have the names of *Casolani*, *Salimbeni*, and *Vanni*. A series of the Paintings of the native artists is preserved in the Academy at Sienna.

School of Milan.

Milan first became celebrated for her school of Art in the days of *Leonardo da Vinci*, who, as was before observed, was brought hither from Florence by the order and under the patronage of the Government, and was employed here as Architect, Civil Engineer, and Painter. The famous Picture of the *Last Supper*, in the Refectory of S. M. delle Grazie, is one of the most celebrated compositions in the world; and although but faint traces are left of the original work, it is happily preserved to us in the faithful engravings of Morghen and others, and also in the copies made by the Milanese scholars of this great man: of him, however, we have already spoken under the head of the Florentine School.

Leonardo da Vinci.

Luino.

Bernardino Luino, if not his scholar, is at least the most successful and the best of his imitators, possessing indeed so much of original talent himself, as scarce to deserve the name of imitator, if applied to the servile fashion which it commonly describes. Many frescoes from this master are placed in the Picture Gallery of the Brera at Milan; but there are some still finer specimens of his talent to be seen in the Hotel of the Croce di Malta, and in the Church belonging to the village of Saronno.

Ferrari.

Gaudenzio Ferrari, the pupil of Raffael at Rome, was also a Milanese, and formed for himself a School of his own, upon his return to his native city. Of later names which do credit to Milan, we may mention the family of the *Procaccini*, who were three in number, *Camillo*, *Giulio Cesare*, and *Ercole:* and in the beginning of the present century *Appiani* was living at Milan, a native artist who has given the best specimen of fresco Painting in the last century, in the Church of S. M. in Celso.

School of Naples.

Among the *Neapolitans* we find but little originality: the respective styles of Michael Angelo and of Raffael were taught by their scholars, who had settled in this city, and to imitate them well was all that in their days was required. *Spagnuoletto* had talent, and he seems, from the best accounts we have met with, to have been born in the Neapolitan territory. There is, indeed, a singularity and boldness in his style which stamp him as no ordinary genius. But we cannot consider him as in any shape the inventor of a style: that which he possessed was chiefly built upon the principles of M. A. Caravaggio; but his lights had less of breadth and of glaringness of effect in them, than those of that master. Contemporary with him was the *Cavalier Calabrese*, a no mean Historical Painter in his day.

Spagnuoletto.

Salvator Rosa.

Salvator Rosa was the pupil of *Aniello Falcone*, who migrated to France, and settled there; he too left his Country as soon as he had attained any degree of eminence in the Art, in order to seek his fortune at Rome: and he must be pronounced by all to be truly original. He was a Poet, a Musician, and Satirist, the life and spirit of the Carnival in the year in which he arrived at Rome, and one of the best Landscape Painters of the day, even while Claude and Poussin were yet living. A certain contradiction of humour, however, for it is difficult to give it any other name, was the cause of his being perpetually involved in troubles: and if it promoted a disposition in him to seek out and produce of himself what was new and original, because it was in opposition to the taste of others, it certainly, so far, was advantageous to the Art. But we must say this only of his efforts in Landscape Painting, for this same pride of mind led him quite astray when he attempted the Historical line; and his life was unhappy, because he was perpetually struggling against the public voice, which condemned, and justly too, all his Pictures of that description.

Other Italian Schools.

Luca Giordano.

Luca Giordano flourished at Naples towards the middle of the XVIIth century; he was one of the best imitators of the style of other Painters in general that has ever been known. Pictures, as if from the hand of Albert Durer, Titian, Raffael, P. Veronese, P. Cortona, all were produced with equal facility by his free and happy pencil. As for his own style, there is an azure colour which seems to form the standard of his composition, and with which the most brilliant and fascinating combinations are sometimes most skilfully formed; in his figures he chiefly reminds us of the the stolen beauties of the above mentioned Painters. His Pictures are very common in the collections of amateurs, and those of his scholars, who are numerous, are often sold under his name. *Paolo di Matteis* is reckoned the best of them.

School of Mantua.

Mantegna

The first Painter whom *Mantua* can boast is *Andrea Mantegna*, who is generally classed under the head of the Venetian School, being a Paduan by birth; he is one of those great men who may be classed among the fathers of modern Art: he died in 1506; some very fine specimens of his manner are preserved in the Palace at Hampton Court.

Giulio Romano

Soon after his day appeared in this city one of the ablest of the pupils of Raffael, who was a native of Mantua, namely, (*Pippi*) *Giulio Romano*,—"that rare Italian master, who, had he himself Eternity, and could put breath into his work, would beguile Nature of her custom; so perfectly is he her ape." (*Winter's Tale* act v.) Shakspeare was mistaken in one point, as Giulio Romano never practised Sculpture, of which he is speaking in this passage. Nor is the remark otherwise just, for it was not the exact imitation of Nature in which he excelled; his merit is this, that his conceptions are filled with Poetical imagery, and all the beauties of ideal scenery. The *Battle of the Giants*, a fresco Painting in the Palazzo del Tè at Mantua, is one of the best examples of his ability; all the lesser Paintings of varied sorts in the several compartments of the walls and ceilings, and even the arabesque ornaments, are also designed by him. He was, moreover, the architect who planned and executed the structure itself, which, in spite of a few whimsical irregularities of design, has infinite merit: there are many effects of picturesque grandeur in building, which impose upon the Imagination far beyond any of those Classical delicacies which the rule and compass can effect almost of themselves. His own house, or Palace it might be called, is here still pointed out to the attention of the traveller; for he spent the latter part of his life in his native place. *Ippolito* and *Lorenzo Costa* were among the best scholars that he left behind him. *Domenico Feti*, from Rome, lived for some time at Mantua under the patronage of the Court.

School of Modena.

Pellegrino

Modena boasts of having contributed one distinguished artist to the School of Raffael, namely, *Munari*, better known by the name of *Pellegrino da Modena*; for his best works we must go to Rome.

Orsi.

Lelio Orsi was also a native of this place; but he too remained here but a short time, having been banished by the Court, and afterwards settling in Piedmont, in which Country many very fine compositions by him are to be

Painting.

met with: there is no foundation, however, for the story commonly related, namely, that he was a pupil of Michael Angelo.

Schedone

Bartolomeo Schedone, a not unsuccessful imitator of Corregio's style, comes under the head of the School of Modena.

School of Cremona.

Cremona has the merit of having sent forth some Painters of considerable talent in the earlier days of Art, such as the two *Boccacini*, father and son, and *Bernardino Gatti*, or *Il Sojaro*.

The Campi

But its chief fame is owing to the School formed here, in the middle of the XVIth century, by the family of the *Campi*, who were four in number, *Giulio*, *Antonio*, *Vincenzio*, and *Bernardino*. Their style was partly composed from that of Giulio Romano, but its strange features were softened down by the addition of the Corregiesque gracefulness of attitude and beauty of colouring. They were very successful in their day, and their Pictures, if not common elsewhere, are often to be seen in Lombardy. They too had a follower in *Gio. Bat. Trotti*, or *Malosso*.

School of Ferrara.

We find one of the pupils of Raffael settled at *Ferrara*, who retired from Rome with considerable reputation, and gave up his latter years to his native city.

Garofolo.

His name is *Benvenuto Tisi*, (or *Il Garofolo*, as he is called, because he used to paint a clove or violet upon his works, as his private and peculiar mark.) In him may be traced much of the elegance of the School from which he issued; and his colouring savours of those principles which guided his master in his latter and better days. *Girolamo da Carpi* was the scholar of Garofolo at Ferrara.

Filippi.

The style of Michael Angelo too was cultivated here by *Camillo Filippi*, who has left a specimen of his talents in a Picture of the *Last Judgment*, in the Choir of the Metropolitan Church.

Scarsellino, with his pupil, *Camillo Ricci*, may be classed among the imitators of P. Veronese, and *Gian. Mazzuoli*, (or *Bastaruolo*,) together with his pupil, *Carlo Bonone*, of Titian, and with their names we must close the account of Art as cultivated at Ferrara.

School of Genoa.

Perino del Vaga, another of the School of Raffael, introduced the manner of that master at *Genoa*, soon after the general dispersion of the artists from Rome upon the sacking of that city by the troops of Charles V. By his instructions were formed two brothers, *Lazzaro* and *Pantaleo Calvi*, who were very respectable Painters: and it is to be presumed that the other Genoese belonging to this era, such as the two *Semini* and *Luca Cambiaso*, (the same who went to Spain,) drew the principles of their style from the same source, though they were not actually his scholars. A certain Noble, *G. B. Paggi*, (the first instance at Genoa of a Patrician so devoting himself,) continued the profession towards the end of the XVIth century, and became one of its most distinguished ornaments. But far from limiting their patronage to their countrymen alone, the wealthy Genoese sought in an after Age the assistance of those who bore a high reputation abroad, inviting and encouraging the residence among them of some of the most celebrated foreign artists. *Rubens*, *Vankyke*, *Simon Vouet*, and many others, in this way, remained a long time engaged upon Painting in this city, and have left behind them many splendid memorials of their skill and ability. Native talent, however, was by this means considerably depressed; and we find the latter annals of this School, as it may be called, filled with few names of any note or distinction. The two *Carloni*, and *Bernardino Strozzi*, (*Il Prete Genovese*,) were respectable Painters, as also were, in still more modern days, *Il Grechetto*, or *Giovanni Benedetto Castiglione*, and his two sons: these last, however, chiefly excelled in painting animals.

Dutch and Flemish School.

Of Piedmont and Savoy.

In *Piedmont* and *Savoy* also we find that foreigners. (for so they call the natives of other States of Italy,) chiefly engrossed the public patronage, and there are few instances of native artists who rose to eminence. *Giorgio Soleri*, of Alexandria, however, in the XVIth century, appears to have painted several altar-pieces for Churches, and to have made some Historical pieces which are now remaining. We may quote also the name of *Gul. Caccia*, (or *Moncalvo*,) of Monferrato, with those of his two daughters, *Francesca* and *Orsola*. *Antonio Molinari*, (or *Caraccino*, as he is sometimes called from his imitations of the Caracci,) was a native of Savoy, but he expatriated himself, and passed the greater part of his days either at Rome or Bologna.

Of Turin.

In the XVIIIth century we find a School established at *Turin* by another distinguished native artist, namely, *Claudio Beaumont*, by whose means and interest a Royal Academy was first established in the Capital; some of his Pictures are to seen at the Church of Santa Croce and in the Royal Library.

DUTCH AND FLEMISH SCHOOL.

In turning our attention to Holland and Flanders, we find certain peculiar and distinctive qualities belonging to the Painters of these countries, and a perfectly new department of Art established; new, at least, in comparison with that which we have hitherto been reviewing, and indeed invented, one might almost say, by the rude Ultramontanes. It is a style of a lower description; it aims at a more homely representation of Nature than that which the polished Italians had ever thought worthy of being represented on canvass; but still it is excellent in its kind. Whether Figures, Portraits, or Landscape are subjected to the pencil, strong characteristic expression everywhere gives an interest to the scene; and Nature is vividly brought before our eyes: neither is skill nor science wanting, nor are the picturesque refinements of colour, grouping, or striking effects of light and shade, by any means absent from the better style of Dutch and Flemish Pictures; on the contrary, their artists have laboured long, both judiciously and industriously, and now exhibit all the advantages which the most accomplished practical experience can expect to attain. All that can fairly be objected against them is, that they possess no refinements of dignity, or loveliness of attitude; none of the tempered delicacies of sentiment are ever expressed by the personages whom they represent in their compositions; it is Nature—plain Nature—and Nature, too, as she shows herself amongst the ruder nations of the North; unadorned, and unassisted by those Poetic feelings which in realms of higher polish and civilization have ennobled Mankind.

J. Van Eyck.

This School dates its existence from the days of *J. Van Eyck*, the reputed inventor of Oil Painting, and of his brother, *Hubert*, both of whom passed their lives

Painting. at *Ghent* and *Bruges*. Two fine Pictures by the former of these artists are in the possession of the Duke of Devonshire, and in them may be traced the first symptoms of that distinctiveness of feature and attitude, which was to be regarded in after-times as the peculiar characteristic of the School. As to the invention of the art of Painting in oil, it is clear that it does not belong to Van Eyck; many Pictures in Italy, and even in England, were so painted long before his day: but he certainly made some great discovery with regard to the use of oil as a vehicle (as it is called) for colour, and it is probable that his secret may have regarded the preparation of a drying oil for the Painter's use; than which, indeed, no discovery can be conceived of much greater importance, as far as regards the mechanism of Art; nor need we be surprised at the sensation which it created both in Flanders and in Italy. On this subject we may refer to James's *Flemish and Dutch Schools of Painting*.

His discoveries in oil painting.

J. Van Eyck was born in 1370. Contemporary with him was *Hans Hemmelink*, who, though he mixed his colours in the old fashion, with white of eggs or gum, obtained much harmony and power of colouring. He too was of Bruges.

Hemmelink

We next come to *Volkaert Klaasz*, of *Haarlem*, chiefly celebrated for his designs for the Painters on glass; an Art for the invention of which we are indebted to a Frenchman, (*Guliclmo de' Marcilla*, or *William of Marseilles*,) as appears, but which was nowhere carried to so great perfection, or so extensively practised, as in Flanders. In all the Pictures of Klaasz we observe sober-looking, sedate figures, placed in angular and awkward attitudes, and yet by no means void of force or expression. The same remark may be made of two other Painters of an early date, *Quintin Matsys*, of Antwerp, a name well known in England, from his celebrated Picture of the *Misers*, at Windsor Castle, and *Cornelius Enghelbrechtsen*, (or *Cornelius le Cuisinier*,) of *Leyden*, so called from being cook in his own family; he was greatly patronised by Henry VIII. of England, and his works were highly esteemed in this country.

Volkaert Klaasz.

But *Leyden* has still higher claims to notice in a Historical account of this School, from being the birthplace of *Lucas Jacobs*, (or *Lucas de Leyden*,) the friend, and we may add, in some sort, rival of the celebrated Albert Durer. He was an Engraver, Painter on glass, as well as Designer of Landscape, History, and Portrait, and excelled in all these several departments of the Art; some of his engravings, which are by no means uncommon, will give a better idea of his style than can be furnished by any verbal description. Still, however, the School furnishes no examples of more spirited style than those which have been described; nor does it exhibit any great advancement in the ideas of its professors on the subject of their Art.

Jacobs.

About the beginning of the XVIth century a considerable change seems to have taken place; the fame of the Italian Painters, which had now reached its zenith, the universal admiration which they had excited, and the overwhelming praises which were accumulated upon them by all the writers of the day, induced these northern artists to enlist themselves under their banners, rather than, as bolder spirits would have suggested, to enter into competition with them. Most of the Dutch and Flemish artists of this century thought it absolutely necessary to visit Italy, in order to qualify themselves for the exercise of their profession; and their own natural powers and natural resources were neglected, in the hope of sharing the fame of the Italian School. Hence arose a new style of Painting, not indeed a very successful one, but it may be described as approaching nearer to the reigning fashion of the day in Historical composition, than any thing that the artists of this School had hitherto produced. *Lambert of Liege* was one of these travelled artists, and one who contributed more than any other, perhaps, to foster and to encourage among his countrymen this rising predilection for Italian study. He established for himself a School on the Italian principle, in which were formed many of the better artists of the succeeding Age; *William Key*, of Breda, who is said to have painted both History and Portrait in good style, gained his instructions here; as did also *Hubert Goltzius*, of whose proficiency we can form a good idea from his engravings now extant. Last, not least, we may quote the name of *Franc Floris*, (or *Francis d'Uriendt*,) to whom is attributed, even by a Florentine writer, (Vasari,) the surname of the Flemish Raffael: it must be confessed, indeed, that in point of the Classical air with which he has invested his figures, he went far beyond any of those Painters of the Low Countries whose names have been mentioned above. *The Life of St. Luke*, and the *Day of Judgment*, painted for a Church at Brussels, are reckoned among his best works. We may be enabled to form some judgment of the esteem in which he was held by his countrymen, from the number of young artists who crowded the benches of his School, each desirous to begin the world under the auspices of so celebrated a name: his scholars were a hundred and fifty in number, amongst them were his two sons, *J. B. Floris* and *Franc Floris*, *Martin Vos*, *Lucas de Heere*, (who was much employed in England,) *Old Frank* and his family, and *Porbus* and his family, who both seem, like the Bassano family in Italy, to have cultivated a style that was hereditary in descent together with the name of their family.

Dutch and Flemish School.

Franc Floris

His scholars.

The city of *Brussels*, too, may exult (and it is no small matter of boast) in having contributed one of the artists who formed the School of Raffael at Rome, *Bernard Van Orlay*, or *Barent of Brussels* was his name. His most celebrated original compositions were *Cartoons* for the tapestry of the Palace of the Prince of Orange at Breda; but both he and *Michel Coxcie*, of *Mechlin*, who also had studied in Italy, were most successful in their copies and *pasticcio* imitations of the Pictures of Raffael; many of those bright and soft Paintings, which are now highly valued as undoubted originals of that great master, having in fact issued from their manufactory. *Il Sordo Barent*, as he was called in Italy, was the son of *Van Orlay*, but a follower of the style of Titian rather than that of his father. We find a few other Historical Painters of note at Brussels, as *Lucas Gassel von Helmont*, *Peter Moel*, and *Roger*, *de Weyde*.

Barent.

Progress during the XVIth century.

At *Utrecht* we meet with *Jan de Mabuse* in high reputation towards the middle of the XVIth century. At *Amsterdam*, *Jan Schoorel*; and *Antonio Moro*, the pupil of this last-named artist, rose to so high a reputation as a Portrait Painter, that he received invitations to foreign Courts, and was treated with the highest attention at London, Madrid, and Lisbon; a great honour for one who was not a native of Italy, hitherto regarded as the natural and exclusive country of the Fine Arts.

Painting.

Though the Italian taste, and a general rage for Historical Painting had now completely gained the ascendancy in public estimation even in Holland and the Low Countries, yet we turn with pleasure to that raciness of native talent, which here and there appeared to recall the natives of these countries to a just appreciation of their own natural peculiarities. The Heroic vein never seems to have been adopted, willingly at least, either by the Dutchman or the Fleming; they are in this line imitators, and awkward in their imitations. It is only when we see from his spirit and vigour that a man is following a natural call and inclination of his genius, that we can allow to him a full tribute of praise and admiration. The first master who struck out a new line, and thus boldly dared to leave the fashionable and beaten track, was *Peter Breughel*, or *Breughel the Old* or *the Droll*, as he is called; not but that he, too, has painted Historical pieces, in compliance with the fashion of his day; but it is in his lighter pieces alone, such as fairs or *kermesses*, marriages of the peasantry, and other rustic revelries, that we recognise the full force and power of his talent. He painted first at Brussels, and next at Antwerp, and left behind him two sons, who attained great eminence in their respective lines, *P. Breughel the young*, (or *Breughel d'Enfer*,) a Painter of conflagrations, &c., and *Jean Breughel*, (or *Breughel de Velours*,) so named from the bewitching softness of his style.

The Breughels.

P. Aertsen.

Peter Aertsen, (or *Peter the Long*,) who was born at *Amsterdam* in 1519, may be regarded as an inventor with regard to another branch of Art, namely, the Painting pieces of still life; a walk of Art that may be said to have been carried by the Flemish and Dutch artists to the highest degree of perfection: pots and kettles, and other kitchen furniture, in the hands of Aertsen became materials for a Picture; and with him they were made to produce a beauty of colour and effect equal to that which might be exhibited in the best executed Pictures of more promising imagery. His style presently attracted notice, as much from its intrinsic merit as from its air of novelty, and was followed with great assiduity by many succeeding artists, such as *P. van Bochts*, *W. Kalf*, *T. Dicht*, *Peter Arnold*, and *Dirch Pieters*, &c.

A third walk of Art, which now came into cultivation in these countries, was the Painting *perspectives*, or architectural vistas; but by the Dutch the rich combinations of Gothic architects were exhibited, not, as by the Italians, the symmetric and rectangular forms of the Grecian or Roman buildings; a most important difference in the eye of the Painter. The sublime effects of *chiaro-oscuro*, which these gloomy piles of building afforded, and the mellowness of their colouring, invited men of high talent to employ their time in their delineation; and it may be stated with truth, that there are few compositions wherein more skill and ability is shown, than in the Pictures of Churches produced by this School. *Jean de Uries*, a native of Friesland, born in 1527, was the first to commence this line; it was carried to a still greater degree of perfection by his scholar, *H. Steenwych*, and again, in after-times, by one who was the scholar of the last-named, that is, *Peter Neefs*.

Interiors.

J. de Uries.

Steenwych.

PeterNeefs.

Some successful attempts also were made at this day in the department of Landscape Painting by *Molenaer*, *Matthew*, and *Paul Brill*, who are, or, at least, the two last are, better known at Rome than in their own Country. Marine views also, for which this School became in after-times so celebrated, were painted even in this early day by *N. Cornelius Vroom*, the same artist who furnished the designs for the tapestry representing the defeat of the Spanish Armada, now hanging up in the English House of Lords.

Dutch and Flemish School.

Marine views.

There is no branch of Art, perhaps, in which this School showed so much real merit, as in Portrait painting; there is an apparent breadth arising from their Portraits, a management of their subject, and an air of fidelity of character preserved in all their works of this nature, which were beyond praise. *Cornelius Ketel* and *Mirevelt* are both well known in England in this line. Many others obtained establishments at foreign Courts; nor ought we to consider Courtly favour as limited to professors of this branch alone, when *Bartholomew Spranger*, for his Historical designs chiefly, was employed both by Pope Pius V., at Rome, and the Emperor Maximilian II., at Vienna, from the latter of whom he received a patent of Nobility.

Ketel.

Mirevelt.

Spranger.

But neither was the rage for the style of Italy subdued, nor were the Dutch and Flemish artists less desirous than before of finishing their education in that Country: there was, indeed, formed, towards the end of the XVIth century, a very large Society by them, during their residence at Rome, under the title of the *Bande Académique*. They had regular meetings, accompanied with ceremonies and libations in somewhat a freer style than that to which the Italians are accustomed, but they imitated the example of that people, in giving a *sobriquet*, or nickname to every one of their countrymen, upon his first admission to their Society, by which he continued ever after to be distinguished amongst themselves.

Bande Académique.

Dionysius Calvart, of *Antwerp*, may be mentioned as one of the most noted of the Dutch Italian Painters. His native country may be justly proud of him, as he was the first ultramontane who was regarded as eminent enough to establish a School of Painting in Italy. It was in his School at Bologna that Guido, Domenichino, &c., studied, before they attached themselves to the maxims of the Caracci.

Calvart.

In the works of *Otto Venius*, the master of Rubens, we see a fair specimen of the Classical turn which had been acquired by these sons of the North, and the progress they had made. His *Emblemata Horatiana* abound with designs conceived with as much taste as spirit and ease.

OttoVenius.

Henry Goltzius was a master scarcely less successful in his way. *Adam Van Ort* also may be mentioned here, and his pupil, *H. Van Balen*, of Antwerp, many of whose elegant and spirited little figures will be remembered by the Italian traveller, as holding a distinguished rank among the marvellous productions of that Country. Among his pupils were *Sneyders* and *Vandyke*.

Goltzius.

Van Ort.

Van Balen.

A. Bloemart is a still more singular instance of the labour and zeal with which Italian studies were pursued at this time: in his compositions we see a grandeur of thought, and a noble simplicity, far beyond the usual productions of the imitative class; from his turn of thought he would have done credit to the School of Rome herself, and yet, as far as we know, he never left the boundaries of his native land, and framed himself wholly by the models and examples which were afforded

A. Bloemart.

Painting

in the Academies of the Dutch and Flemish cities, and the private cabinets of connoisseurs.

But we now touch upon the most brilliant period of the Dutch and Flemish School: all that had hitherto been displayed in Art in these Countries, was to disappear before that bright constellation of masters, which beamed forth in its full lustre in the course of the XVIIth century. Of these, the first and greatest is

Rubens.

Peter Paul Rubens. So wondrous was the merit of this extraordinary man, that he seems to have advanced the condition of the Professors of the Art itself to higher honours than it had hitherto been thought worthy to bear. He was invested with singular distinction, and, (though without relinquishing his regular professional occupations,) was often selected for employments of a diplomatic nature. In Italy, Spain, and England, he was known and accredited, either publicly or privately, as a negociator; and in all these Countries he has left specimens of his talent which are to this day held among the most precious and most valuable of their treasures. The series of Paintings representing the Life of Marie de Medicis, in the Louvre at Paris, and the ceiling of the Banqueting-house at Whitehall, in London, may be mentioned as splendid examples of his style, though there is no private collection of Pictures throughout England that does not boast some of his works. Though, as it should seem, without any perception of grace and beauty, he still is considered to have excelled in more points of the Art than almost any other Painter on record, except Corregio: there is an exuberance of design, a floridness of colour, and a general richness and fertility of invention, pervading all his works, which fill the mind, or rather, we should say, overwhelm it, with their power and prodigality. To give an idea of the marvellous extent of his talent, it is indeed enough to say, that he painted History, Portraits, Landscapes, Animals, &c., all with a degree of facility and spirit that was excelled by none of his contemporaries.

We may readily suppose that a man who moved in so elevated a sphere, and became for a time the idol of the Public, would be followed by a host of imitators, and so it eventually turned out; the names of some of the more eminent are worth recording, because their Pictures are often confounded with those of Rubens him-

His followers.

self. We may mention, therefore, *Erasmus Quellin*, of Antwerp, *A. van Diepenbeke*, *Theod. van Thulden*, *Jan Thomas*, *Fr. Wouters*, of Liege, *J. van Oost*, *J. van Koeck*, and last, though far more eminent than all the others, *Vandyke*.

Vandyke.

Antony Vandyke, as well as his master, Rubens, was very favourably received at the Court of Charles I. of England, and has left in our country very many beautiful specimens of his inimitable style of Portraiture. Scarcely were his talents more justly appreciated, or his works more generally admired, during his stay at Genoa, or in other parts of Italy, than they were in London. He is an imitator, doubtless, to a certain extent, of Rubens, in his style of colouring; but in his Historical compositions, in the attitudes and postures of his figures, there are peculiarities that afford, even to an unlearned eye, the easy means of distinguishing between the

His followers

works of the two Artists. Vandyke had many scholars and imitators, such were *Bertrand Fouchier*, *Adrian Hanneman*, *Jean de Reyn*, and *David Beck*, of Delft; the two last of whom, it may be important to add, resided many years in England.

We have before stated, that the middle of the XVIIth century was the proudest era of the Flemish and Dutch School, and it seemed as though, by the collision of contemporary geniuses, a light was then kindled which illuminated for many a year all the Transalpine seminaries of Art. *Francis Sneyders*, who was sometimes employed as an assistant of Rubens, painted animals with a spirit and fidelity which, since his day, have never been equalled. *Jacques Jordaens* laboured in the Historical department with a degree of success only inferior to Rubens himself. *Daniel Seghers*, by his inimitable taste and skill, introduced a taste and fashion for a hitherto despised line of Art, namely for Flower painting; and he may be considered as the father of that School, which in aftertimes gained so much celebrity in Holland and the Low Countries. *David Teniers* too, the elder, whose son became in the next generation so celebrated for his Pictures, cultivated that taste which was before said to have been originally introduced by Breughel the Droll, namely, the characteristic scenes of common life. All these great Painters were then stationary at *Antwerp*, and thus this city gained a name as a nursery of the Art.

Dutch and Flemish School.

Sneyders.

Jordaens.

Seghers.

David Teniers.

At *Brussels* we find *Breughel de Velours* enjoying a high reputation for his small pieces in Landscape and History. *Philippe du Champagne*, an artist better known in France than in his own Country, was a native also of that city. *Francis Hals*, of Mechlin, too, belongs to this day, who painted Portraits in so excellent a style, as to be regarded by general estimation as no unworthy rival of Vandyke.

Nor were the United Provinces less fertile in talent at this period; *Albert Cuyp*, of *Dort*, is unquestionably the best Painter of natural Landscape, such as it appeared within his own Country, that ever existed. While from *Utrecht* came *Polenburg*, so celebrated for his cabinet Pictures; *Gerard Honthorst*, (or *Gherardo delle Notti*, as he is called in Italy,) the happy imitator of Caravaggio; and the family of *De Heem*, so far famed for their Paintings of Flowers. *Haarlem*, too, at the same time, contributed her quota of genius, and boasts of *Esaias Vandevelde*, the first of that family afterwards so well known in England; and that most indefatigable of all artists, (if all Pictures bearing his name are really from his hand,) *Van Goyen*.

Cuyp.

Honthorst.

Esaias Vandevelde.

But it is to *Leyden* we must turn our eyes, if we would behold the chief glory of the Dutch School, namely, *Gerrets*, or, as he is more commonly called, *Rembrandt van Rhyn*.

Rembrant

Of all men who have ever devoted their time and study to the Art of Painting, Rembrandt may, perhaps, lay the highest claim to originality of genius. Scarcely does he seem to have gained the mechanism of his Art from the three masters under whom he studied in succession, before he quitted them, and shut himself up in his father's mill, where he became, by his own labour and study, a finished Painter of first-rate merit, the founder of a new School, as it were, and a new style of Art. His novel and very imposing method of managing and concentrating the light, in all his compositions, first attracts our attention: then we observe with amazement the variety of colour produced by his deep transparent tints, enlivened here and there with the aid of touches of extraordinary vigour: the whole composition harmonized and united by the use of a greyish greenish background, of an invention peculiarly his own. Add to this, a truth of character

Painting.

and expression in his figures, which though conceived in the same taste as those of many of his fellow-countrymen, yet were distinguished from them all by their superior force and strength. Hence one may form some idea of the magical effects of a genuine Picture by Rembrandt. Disdaining all learning, and despising the then fashionable study of the antique models, with which, indeed, he never gave himself the trouble to become fairly acquainted, he seems to have attained the *ne plus ultra* of the Dutch Heroic style, if any Dutch style may be so called.

Like many other persons of strong but half-cultivated minds, he had his humours and eccentricities of character; and they showed themselves even in his Painting room: nor can we deny that these too were made eminently subservient to the peculiarities of his style. For instance, his cabinet was filled with what he called his antiques; tin pans, brass pots and kettles, and rubbish of every description; and from these, as from the cabinet of a virtuoso, he supplied the materials requisite to fill up his Historical compositions. The single hole or crevice, through which alone the light was admitted to this apartment, furnished him with his ideas of *chiaro-oscuro*, and aided his conception of those singular effects which he produced, both in his Pictures and his etchings. Some have fancied that this conceit was originally suggested to his mind during his days of study in his father's mill, which was probably thus lighted by a single small window; yet, though this idea seems plausible enough, it may have been that his practice in this respect was the result of the deepest reflection. When it is considered, that a Picture is meant to represent, not the whole view around us, but, as it were, the fraction of any scene presented in Nature, who shall say that Rembrandt did not in this way seize upon the most perfect principle of the picturesque, as it regards the effect of light and shade, that we yet have known? Does it not, indeed, appear to be the refinement of an artifice, in these graphic representations, of which some symptoms may be traced in the works of all our best artists?—Rembrandt's etchings bear that value with the world of cognoscenti which the touch of genius ought to stamp upon them; and they did so even in his lifetime. Though we are bound in justice to add, that this very circumstance induced him often to resort to a mean and base trick, in order still farther to impose on the generous partiality of the Public: for he would bring them out sometimes in a half-finished state, and sometimes with false dates of place, and such other unartist-like deceits, as prove too fully that his moral principles were no less removed from any correctness of rule, than his eccentricities of manner were from the common practices and prepossessions of his fellow-creatures.

His followers.

Rembrandt had, as may be expected, a large School of imitators, many of whom were eminently successful. We may quote the names of *Jurien Ovis*, *Ferdin Bol*, *Adrian Verdoel*, and yet still more celebrated, *Eeckhout*, *Hoogstraaten*, *Nic. Maas*, *Sir Godfrey Kneller*, and *Gerard Dow*.

GerardDow.

Gerard Dow, like all true men of genius, not content with following Rembrandt's manner, brought to his work something of his own: he adopted that which best suited his own peculiar talent, and, by adding a new style of colouring, became in some degree himself the founder of another School of Painting. His Pictures, which are of a small size, and exquisitively finished, are generally composed of single figures; they are beautiful models of the Art of colouring. He generally introduces a carpet, for the sake of the richness of its varied hues, or sometimes, perhaps, to bear out by its brilliancy what might, in other parts of the scene, appear too fine and gaudy. *Mieris* was his scholar; an artist of great simplicity of taste, as to colour, but in all respects a worthy disciple of such a master: he painted Portraits for the most part, but they too are always of a small size.

Dutch and Flemish School.

Mieris.

Haarlem produced two very celebrated men, who were born in the beginning of the XVIIth century: namely, *Gerard Terburg*, an admirable Painter of cabinet Pictures representing scenes in common life; and *Adrian Brauwer*, a profligate and incorrigible drunkard, who, nevertheless, possessed great talent, though he seems never to have entertained a thought of looking out for subjects for his pencil, beyond those drunken scenes with which his libertine life made him daily conversant.

Terburg.

Brauwer.

Adrian and *Isaac Ostade*, whose names are also celebrated in this same walk of Art, were natives of *Lubeck*, in Holstein; but since they formed themselves chiefly by their studies at Antwerp, and as they lived in Holland for the most part, may be fairly included among the Flemish and Dutch Painters. Though the School will lose almost as much by the adoption of this rule in another instance as it will gain in this; for an artist of great reputation, namely, *Peter de Laar*, (or *Bamboccio*,) a native of these parts, not only studied in Italy, but passed the greater part of his life there, and therefore may be classed among the Italians. He it was by whose skill a taste was introduced into that Country for these ultramontane humours.

Adrian and Isaac Ostade.

Bamboccio.

We have now arrived at another generation, when the sons of the earlier contemporaries of Rubens were coming into vogue; and among these we find the name of a Painter who certainly, next to that great man, has most contributed to the fame of his Country, namely, *David Teniers the younger*. He was an admirable Painter of Landscape, and equally successful, for one cannot say more so, in his representations of fairs, conversations, shops, and subjects of that homely description: in which it is difficult to decide, whether one should admire most, the discrimination with which they are treated in respect of character, or the skill and artifice displayed in their colouring, arrangement, and design.

Teniers.

Of Landscape Painters, we may mention *Herman Swanevelt*, (the hermit of Italy, as he was called,) a Dutchman born, who at Rome became a scholar of Claude Lorrain; and *A. Pynaker*, of *Delft*, who also wandered to Italy, and completed his studies there. Much more celebrated was *Nicolas van Haarlem*, or *Berghem*, as he was nick-named, a pupil of *Van Goyen*, and one who, like his master, had the special merit of limiting his views to those subjects which the country around him naturally supplied, instead of migrating to the less congenial land of the south. His style is remarkable for the clearness and freshness of his colouring; and it is enough to say that, all Dutchman as he was, he is universally acknowledged to have been the best Painter of pastoral scenery that ever appeared. True genius finds matter enough to work upon, wheresoever it may by chance have been placed.

Swanevelt.

Pynaker.

Berghem.

From the same city came *J. Wynants*, also an excellent Landscape Painter: his Pictures are conceived certainly in a more lively, but still a more finical style.

Wynants

Painting. Ruysdael. Hobbema.

Jacques Ruysdael, too, was from the same place. This last artist, as well as his contemporary, *Hobbema*, of *Antwerp*, makes use of the same brown ground for a middle tint, of which Van Goyen had so happily availed himself. Their Pictures seem, indeed, generally, little more than a few touches of opaque colour upon this transparent brown, relieved occasionally with black. The forest scenery of these two artists is always excellently depicted.

Wouvermans

Philip Wouvermans was also of *Haarlem*, and one of those unhappy men who met with success in his lifetime very ill-proportioned to his real deserts. That taste which inclined him so to compose his Pictures that his horses, not his Landscape, caught the eye, and formed the main feature, was, indeed, peculiar to himself alone: and it must be observed, that in this, and all cases of a similar nature, it is absolutely necessary for the artist to be able to create a taste in the Public for this species of Painting, and to enure them to it before any great demand for his Pictures can possibly arise; and this is seldom done without the intervention of a Patron.

Paul Potter.

Far different was the fate of *Paul Potter*, of *Amsterdam*; with him, indeed, cattle were not merely brought forward so as to be prominent from their situation, but actually formed the chief part of his Pictures; his Landscape was but an accessary in the style of composition which he adopted: and he filled the same place with regard to representations of the domestic animals, which Sneyders did with regard to the wild; nor was he less successful in his delineations of their character, than that great artist had been in his line. They were painted with surprising fidelity of manner and expression. Even during his lifetime, though this is less extraordinary in those golden days of patronage, every Picture that he wrought, however homely the subject, was bought with the greatest avidity; and an extensive catalogue of imitators preserved the memory of his style long after their inimitable master was gone. Of these *Karl du Jardin*, also a native of Amsterdam, was, perhaps, the best: he was an imitator, however, and a successful one, too, of Berghem as much as of P. Potter; and still, with all this servile power, he possessed much original talent of his own. Some other distinguished natives of Amsterdam occur towards the middle of the XVIIth century; such as *Weeninx*, (both father and son,) admirable Painters of Landscape and of Game. Likewise *Eglon Van der Neer*, a Painter of Moonlight pieces, and *William Vandevelde the younger*, a Marine Painter. *W. Vandevelde the elder* was a native of *Leyden*; and both passed the latter part of their lives in that city.

Weeninx. Vandevelde

Utrecht boasts at that time two couple of brothers who greatly excelled in Landscape Painting, namely, *Jean* and *André Both*, and *Herman* and *Cornelius Zacht-Leven*. But Portrait Painting seems to have met with most encouragement from the wealthy; and the rage of the day seems chiefly to have been for small Pictures. Mieris introduced this fashion, and it was now kept up by *G. Metzu*, of *Leyden*, whose colouring may be said to approach in small, very near to that which Vandyke produced in large. *Godefroy Schalken*, of *Dort*, famous for his candlelight compositions, was much engaged also in Portraiture: and so was *Jacques Denys*, of *Antwerp*, though he ventured also into the Historical line, and raised himself so great a reputation in Italy, that he was received on his return to his native city with a public procession in his honour.

Both. Zacht-Leven

Schalken.

Dutch and Flemish School.

We are not to suppose that Historical Painting was wholly neglected in Holland and the Low Countries, during this latter period of the School; but the truth is, that those artists who struck out the brilliant novelties of style which form the real glory of the Flemish and Dutch Schools, have so far eclipsed the Classical and imitative band, that those who would give a true and just idea of its History must limit their account to the former. We can mention only one artist of these parts whose ideas seem to have been really naturalized in the soil of Italy, and that was merely in the line of Landscape, namely, *Van Bloemen*, or, as he is commonly called, *Orisonti*: every other artist seems to have sunk in reputation, the farther he attempted to advance in what was to him neither natural or congenial.

Van Bloemen.

Gerard Lairesse, of *Liege*, is called the Flemish Poussin, and few men ever displayed more fertility of genius than he did; but unfortunately, like many of his compatriots, his sensual indulgences brought upon him a severe misfortune, and he became blind in the fifitieth year of his age.

Lairesse.

Battle Painting was now grown very much into vogue: *Vandermeulen*, of *Brussels*, was one of the most eminent in this branch; an artist who had the good fortune to be employed by Louis XIV. of France, in order that he might immortalize by his pencil the military exploits of his reign: *Hughtenburg*, of *Haarlem*, (his scholar,) also followed him in the same style of Painting, and he celebrated, on the other side, the glorious actions of Prince Eugene of Savoy, and the Duke of Marlborough.

Vandermeulen.

Hughtenburg.

The family of *Van Huysum*, of *Amsterdam*, in the beginning of the XVIIIth century, succeeded in carrying to still greater perfection than it had yet attained that style of Flower Painting which had excited so much admiration in the days of *Seghers*, *Mignon*, and *De Heem*: so great, indeed, was the passion which had grown up in Holland for the cultivation of flowers themselves, that the artists who made them the objects of their study were sure to meet with abundance of patronage, and therefore it ought not to seem surprising that many of the Pictures of the Huysums were sold at as high a price as 1000 or 1500 florins.

The Van Huysums.

In the elegant and highly-finished Pictures of *Adrian Vanderwerf*, we trace a similar taste to that which formerly inspired the pencil of Polenburg; and it seems to be the only line in which any degree of elegance of form or attitude has been attained in the compositions of this School. His Pictures fetched immense prices even during his lifetime; for they were of a style that could not fail to be pleasing to all the world, from the wise to the vulgar. With regard to his style of attitude, &c., he may be regarded as affording a happy specimen of what may be called unclassical grace. He died in 1722.

Vanderwerf

The Painters of the modern Flemish and Dutch Schools are very successful in their imitations of their mighty predecessors; and though many men of ability have appeared amongst them, and even now are living, yet, perhaps, these imitations may be classed among the most happy productions of their pencil.

Painting.

GERMAN SCHOOL.

German School.

Nuremberg was the first city of Germany wherein a taste for the Arts of design appear to have been displayed. In the XVth century *Martin Schoenfield* was resident there, who is celebrated as the reputed inventor of the art of engraving upon copper: and there, too, flourished at the end of this same century *Albert Durer*, the chief leader of early Art in his Country. He was, as many other of the earlier artists were, a Professor of more than a single branch of Art, and gained a high reputation as a Painter of History, an Architect, a Goldsmith, and an Engraver. The correspondent of Raffael, the friend of Lucas de Leyden, and honoured towards the close of his life with a patent of Nobility from the Imperial Court, he may be regarded as having attained the highest honours and most extensive fame of any man of his time. His general style is well known, for his engravings are in the hands of almost every one: he possessed great force and even sublimity of design, but had, it must be confessed, little perception of grace or beauty. *Pens* and *Gruenwald*, whose Pictures may be seen in the Royal Gallery at Munich, and were contemporary with Albert Durer, afford no mean specimens of the professional skill of the artists of that early day.

Albert Durer

Pens and Gruenwald.

There was another artist of this period who was endowed with natural faculties much of the same stamp and order, namely, *Lucas von Muller*, (or *Kranach*,) of *Augsburg:* and something similar, in point both of ability and skill, was a person better known to us in England than any of the above, that is, *Hans Holbein*, of *Basle*. He is first recorded by the Chroniclers of the time, as having been engaged by the municipality of that city in furnishing Paintings for the Fish Market and the Town Hall of his native City; these were public works, and therefore, that he should be selected for the purpose, is some proof of the honourable estimation in which he was held. He also, as it appears, painted the celebrated *Dance of Death*, then a favourite subject of representation in Swisserland, and which has exercised the ingenuity of many Painters of allegory in a later Age. We can discern nothing now remaining at Basle of this work, or nothing rather which can, on any good ground, be credited as having come from his pencil. It was not until the period of his settlement in England, however, that his style was matured, or that his fame rose to its zenith. We learn that he undertook this journey upon the strength of letters of recommendation, of which he was the bearer, from Erasmus to Sir Thomas More; and so pleased was his patron with his industry and talent, that it was through his means that he finally received the appointment of Painter to King Henry VIII., and was established as a favourite of the Court. Besides painting numerous Portraits of our Nobility, Holbein was engaged also in making some large allegorical Pictures for the Surgeons' Hall in London; for the Bridewell Hall, and for that of the Merchants of the Steelyard: and it will be allowed, that he certainly was possessed of great power and fertility of invention, though nothing can be more remote from Classical grace than was his style. His Portraits, with which we are most familiar, carry with them the appearance of great truth and force of character, though chastened by a soberness and dignity, both in mien and attitude, which were peculiar in some measure to the manner of that day.

Lucas von Muller.

Holbein.

Tobias Stimmer, another Swiss artist of the XVIth century, furnished some very spirited and clever designs illustrative of the Sacred History, meant as accompaniments to an edition of the Bible. The manner of conception of these prints much resembles that of the works of Holbein and A. Durer. Toward the end of this same century we find abundance of Painters on glass, and some few authors of Historical pieces, as *Kranach the younger; Aldegraaf*, of *Nuremberg*, whose engravings are not uncommon; *Swartz*, of *Munich*, and *Haintz*, of *Berne*. We must suppose the Painters of this part of Germany not to have possessed any very great or extraordinary talents, when we find the Emperor Maximilian II. sending to a distant country for some decorative works which he had in contemplation, and employing *Bartholomew Spranger*, of *Antwerp*, for that purpose. Nor have we any reason to believe him to have been found unworthy of this preference, as he was continued in his employment during the reign not only of this Emperor, but also that of his successor, the Emperor Rodolph. Many of his works are still to be seen in the Churches of Vienna and Munich, &c.

We now come to a native artist who does infinite honour to the Country that bore him, namely, *Jean Rottenhamer*, of *Munich*. He was an imitator of Tintoretto, both as to his manner of colouring as well as the general air of his compositions; and so successful was he, that he received commissions in many places for large altar-pieces for Churches, while he was no less sought after for his small subjects painted on copper, such as are not unfrequently to be found in England. But for his extravagance and profligacy, Rottenhamer probably would have amassed a large fortune by his labour. After his return from Italy he lived chiefly at Augsburg.

Rottenhamer.

While the South of Germany was thus comparatively fertile in the production of genius, we shall find some artists of eminence who came from the more distant and Northerly regions. Such was *Jean Lys*, a native of *Oldenburg*, who painted both in large and small size; History, village feasts, dances, &c.: he, too, like the last-named artist, was a great admirer and imitator of the Venetian colouring, and, like him, was thoughtless and profligate, and died in poverty.

Lys.

At *Frankfort on the Main* were born *Adam Elsheimer*, in 1574, an excellent Painter of Historical pieces of small size, and in 1606, *Sandrart*, the Historian of the Art. Portraiture was the chief employment of this last-named master, and he made his residence at different periods, in Bologna, Frankfort, Amsterdam, Augsburg, and Nuremberg. *J. Lingelback*, the Painter of market-places, marine views, &c., was also a native of this place.

Among other Painters of the XVIIth century we must mention *J. W. Bauer*, of *Strasburg*, the author of designs for Ovid's *Metamorphoses:* and next, one who, as far as locality of situation is regarded, ought to be classed among the German artists, namely, *Claudio Gelée*, or, as he is commonly called, *Claude Lorrain:* for that Province was not at that time annexed to France. His studies, however, were made, as his fame was gained, on the Italian soil; and every touch of his magical wand, every shade of his rich and sunny Pictures, savours of a taste that can only be acquired by a residence in that delicious country.

Claude Lorrain.

There are many other native Germans of this century who are usually classed under the head of other Schools

Painting.

than this, on account of the eminence they attained after they quitted their parent land. *J. van Bockhorst*, (*Langhen Jan*,) a native of *Munster*, an excellent Painter of Portraits and Sacred History; *Adrian* and *Isaac Ostade*, from *Lubeck*, celebrated Painters of grotesque subjects and low life; *Henry Roos*, a pupil and imitator of Du Jardin, who was born in the Lower Palatinate; *Louis Backhuysen*, of *Emden*, a Marine Painter; *A. Mignon*, of *Frankfort*, and *Ernest Stuven*, of *Hamburg*, Flower Painters; also *Gaspar Netscher*, of *Heidelberg*, an inimitable Painter of Portraits of a small size, are all of them in common conversation attributed to the Flemish and Dutch School: to which, as far as they were artists, it must be allowed that they belong.

Adrian and Isaac Ostade.

So, again, *F. Moucheron*, a Landscape Painter, was a native of *Emden*, who passed most of his life at Paris and Amsterdam. *Philip Roos*, (*Rosa da Tivoli*,) a native of *Frankfort*, who combined pastoral scenes and architectural ruins, in his rapid and spirited method of Painting, so as to form admirable Pictures; yet he is usually ascribed to the Italian School, having chiefly lived in Italy. And *Peter Vander Faes*, or, as we call him, *Sir P. Lely*, became so naturalized in England during his long residence here, and is so much identified, by means of his Portraits of our great personages, with the History of our Country, that one is surprised to find that he was not a Briton, but a native of *Soest*, in Westphalia. The same remark may be made of *Sir Godfrey Kneller*, who was born at *Lubeck*, in 1648. Yet, in spite of these numerous examples, it must be said, that it was not for want of patronage at home that these artists could be fairly said to have been driven from their Country: for not only the Emperor of Germany, but most of the German Princes laid out large sums at this period in the purchase of Pictures; and many of them retained artists in their service, and advanced them to titular honours, as well as rewarding them with liberal pensions. The Courts of Hesse Cassel, Munich, Dusseldorf, &c., were always open to Painters of merit and renown. But the fact is, that there was no common centre of union in Germany among the artists themselves—no common tie—no general place of meeting for kindred minds; and Germany under that single name, dismembered as it is, and has been, is in reality no Country at all for any man. It includes a number of People speaking different dialects of the same language, but having in no other respect a community of feeling.

Lely.

Kneller

In the next century, we may mention the names of *Raffael Mengs* and *Zoffani*, native Germans, who lived in Italy; *Lutherburgh*, of Alsace, and *Angelica Kauffman*, a Swiss, who expatriated themselves in a similar way, and bestowed, the three last at least, many years of their lives upon England.

Mengs, &c.

In returning to our notices of Southern Germany, we must not omit the name of *Paul Ferg*, a native of *Vienna*, who died in London, in the year 1740, many of whose pleasing compositions of Landscapes, and pieces with figures, are often to be met with at this day. There was also *J. Elias Ridinger*, a native of *Ulm*, a Painter and Engraver of extraordinary merit: though the line in which he exerted his abilities is one that does not equally excite the admiration of all people; he painted animals, and chiefly those of the chase.

Balthasar Denner belongs also to the XVIIIth century, an indefatigable Painter of human heads: one whose works are so highly finished, that they would bear the critical inspection even of a microscopic eye. We might call this, however, but a vulgar style of Painting, when placed in comparison with the works of genius which we have heretofore been enumerating. He was, nevertheless, greatly patronised by almost all foreign Courts, and received offers of pensions and establishments in more instances than one, which his spirit of independence induced him to refuse. It must still be allowed, that in these Paintings, however minute the attention paid to details, the general character and the air of the whole was never forgotten: and his tone of colouring is sometimes very beautiful.

Denner.

Spanish School.

Painting is much patronised at the present day in Germany, not only in the Imperial and Royal Courts, but in many of the minor States: and there are large Galleries formed from the works of the best masters, as well as public Academies instituted at Vienna, Berlin, Munich, Dresden, Stuttgard, and many other of the chief cities of Germany.

SPANISH SCHOOL.

The dominion of the Moors in Spain, and the rich and gaudy style of ornament with which their Palaces and Temples abounded, gave a turn to the Arts in this country, which rather retarded than assisted their progress; or, at least, prevented the Spaniards from acquiring so early as the Italians had done, the just and simple principles which ought to regulate public taste in this respect.

And when their attention was once awakened on this point, they were for the most part obliged to have recourse to study in Italy, and thus to expatriate themselves for a time, before they could attain any very considerable eminence in this refined and difficult branch of Art.

The artists of Spain present themselves generally to our notice, under the head of three different Schools, namely, those of Madrid, Seville, and Valencia; in which, if no very strong and distinctive peculiarities are to be observed, as characterising their several styles, yet the series of artists which are commonly attributed to other places, warrant us in making such a distribution here in a Historical point of view.

Madrid.

There were in *Madrid* several Painters who attained some degree of celebrity even as early as the XVth century; and a few of their works, indeed, are still preserved for the inspection of the curious, affording interesting examples of home-bred talent and industry. Such was *Antonio del Rincon*, a native of Guadalaxares, born in 1446, the first Painter who is said to have ventured to abandon the dry, timid Gothic manner of his predecessors, whoever they were, and to have made a nearer approach to the full proportions of the human form. His manner has a striking resemblance to that of Ghirlandaio of Florence; though, as it appears, this similarity arose from no other circumstance than their having made like efforts to improve their style, and from being placed in like circumstances. Both he and *Peter Berrequete*, (the elder,) were greatly favoured and patronised by Ferdinand and Isabella.

School of Madrid.

Antonio de Rincon.

P. Berrequete.

In the Pictures, again, of *Ferdinand Gallegos*, who was born at Salamanca, in 1475, we might fancy that we traced a strong savour of the manner and style of his great contemporary, Albert Durer; so much, indeed, does he resemble him, that it has actually been conjec-

Gallegos.

Painting. tured that he was placed under him as a scholar. Nor is it improbable, that Gallegos may have formed himself, to a certain extent, upon the published engravings of that master, which already had come much into fashion throughout Europe; as to any other causes of resemblance, we may, in the absence of more positive reasons, fairly attribute them, as we did in the last instance, to the natural similarity of efforts made by men of ability, when placed in similar and correspondent situations.

In the XVIth century the wealth which had accrued to the Spaniards, from their foreign commerce, and their enterprise in trade, paved the way for the establishment of the Fine Arts on a more brilliant and permanent footing; and, in the course of a few years, such talent developed itself, and such eminence was attained, as serves at this hour to shed infinite honour on the Schools of Spain.

Becerra. First may be mentioned the name of *Gaspar Becerra*, a native of Baeza, born in 1520. He was a pupil and assistant of the immortal Michael Angelo, at Rome; and, on his return to his Country, he painted many excellent Historical pieces in fresco, at Madrid, Valladolid, Salamanca, &c. The air of his style, as may be surmised, was like that of the master under whom he had studied; and the Italian tourist will, perhaps, call to his recollection with pleasure, a Picture by Becerra, in the Trinita di Monte at Rome. Nor ought the name

Guevara. of *Don Philip Guevara*, an amateur Painter, to be omitted here; he studied in Italy the manner of Titian chiefly; and there is no doubt, but that from his high rank, good taste, and natural ability, he materially contributed to the advancement of the Arts at Madrid.

Morales. Still more celebrated is the name of *Louis Morales*, or *Morales the Divine*, as he is generally called, either from excessive admiration of his talents, or, as some will have it, from the nature of the subjects which he painted. He first came into notice as a Painter at Valladolid, but his merit caused him soon to be invited to the Capital, where he found employment enough in the Palace of the Escurial, under the reign of Philip II. His ostentatious manners, however, were displeasing to the Court, in consequence of which he seems to have received his dismissal, after which he returned to spend the rest of his days at the city of Badajoz. His subjects are generally single figures, and are very remarkable for their excellent Drawing and force of expression, as well as for their peculiar chasteness of colour. *J. Labrador*, a Flower Painter, was his pupil. We next find a foreigner, *Pellegrino Tibaldi*, of Bologna, employed at the Escurial, in conjunction with *Barroso*, and two other native Spanish artists; indeed, the visits of foreign Painters seem at all times to have been frequent at this Court, and there can be little doubt of their having greatly influenced the fashion, (for such it is,) as to the prevailing manner of Painting at Madrid. We may next mention the names of *Pantoia de la Cruz*, a Painter of Portraits and History; *J. Batt. Mayno*, the master of *Cano*; and a still more celebrated artist in the line, namely, the

L. Tristan. Historical *Louis Tristan*. The last-named learned his Art, it seems, in the School of a Greek Painter, domiciliated in Spain, named *Theotocopulos*, whom, however, like some other precocious pupils, he soon surpassed in strength and power: his Pictures are remarked, in general, for their correctness of design, and their very harmonious tone of colouring; many specimens may be seen in the Churches of Toledo and Madrid.

Fernandez Nazarrete, or *el Mudo*, as he was called, was another native Painter whose talents were brought forward under the patronage of Philip II.; he painted Historical pieces with great spirit and talent, having studied in Italy, and formed his style chiefly by what he had seen in that Country. Spanish School. F. Nazarrete.

Eugene Caxes being a pupil of his father, who had formerly gone through a course of study in Italy, connects himself with the style of Painting in that favoured land, as it were, only by inheritance: but, nevertheless, he was a good Painter of History in fresco, and was much employed at Madrid, by those who seldom threw away their money, the members of Ecclesiastical establishments. Eugene Caxes.

But we have now arrived at the period when appeared the greatest genius, in respect of the Fine Arts, that had yet dawned in Spain, namely, *Velasquez*, or, to give his name more at length, *Jacopus Rodriguez de Silva et Velasquez*. He was born at Seville in 1599, and was first initiated into the mysteries of the profession by Herrera, a Painter of that place; but he soon quitted his instructions for those of Frances Pacheco, a Historical Painter of far greater merit and celebrity. It is probable, however, that his ardent spirit caught more vigour from the sight of those numerous Paintings, which early in the XVIIth century were imported to Seville from Flanders and Italy, as well, indeed, as from Madrid, or at least, we shall otherwise find it difficult to account for the progress which he made. It is upon record, moreover, that the works of Tristan, whom we have mentioned above, particularly engaged his attention; and, so much was his enthusiasm excited, that in the year 1622 he left Seville, with the determination to go and seek his fortune, as well as prosecute his studies, in the Capital. His success in Portrait Painting soon established him there in easy circumstances, and finally led to his employment at the Court; and, owing to this engagement, he had the good fortune of being introduced to the acquaintance of the celebrated Rubens, who was at that time residing there. Of course, he received considerable advantages, if it were only from the conversation of so eminent a Professor, and the practice of visiting his Painting room. Still, however, dissatisfied with his progress, and anxious to improve himself to the utmost, he songht and obtained leave from Philip IV. to make a voyage to Italy, where the works of the great masters at Venice long occupied his time and his attention. Upon his arrival at Rome, he was received with distinguished marks of favour and attention by the Pope, so great already was his fame; and after renewing his studies in that city also, and employing his leisure hours in painting the likenesses of some of the distinguished personages about the Papal Court, he returned to Madrid in the year 1631. From this time he devoted himself to Portrait Painting, in which he attained such skill, that none but Rubens or Vandyke could produce Pictures fit in any sort to be placed in competition with his. Some years afterwards, Velasquez made a second journey to Italy, charged, it seems, with a commission to make a large collection of Pictures, Statues, and Busts, for the decoration of the Royal Palace at Madrid; which served as guides for the succeeding generation of the artists of this School. After this, we hear little more of him till his death in the year 1660. Velasquez.

No man certainly had so great an influence on the profession in Spain, or contributed so much to improve

Painting.

the ideas of his countrymen in general, both by precept and example, as Velasquez. As a Painter, indeed, of a natural style, he has rarely been surpassed by the greatest masters; while we may add, that his just distinction of distance, his brilliancy of effect, and the beauty and harmony of his colours, entitle him to a still less qualified approbation in the ornamental branch of the Art. With regard to the peculiar gracefulness of his touch, we need only quote the words of Raffael Mengs: "the pencil," he says, speaking of a Picture by Velasquez, "seems to have no share in execution here, it seems as a simple exertion of the will."

His pupils.

Martinez del Mayo, a Portrait Painter and Painter in water colours, was one of his pupils, as was *J. Carreno de Miranda*, a Painter of History in fresco, who also excelled in Portraits, and was in many respects a most successful imitator of his master. It is observable, that many Historical Pictures, and those, too, chiefly works in fresco, were produced about the middle of the XVIIth century, in Madrid, Valladolid, and other great towns, by *Matthew Cerego*, and *Claude Coello*. Of this last, who was greatly patronised at the Royal Palace, it is said by the Spaniards, that he united the design of Cano to the brilliant effects of Velasquez, and the colouring of Murillo; thus combining the excellencies of the chief heroes of the Spanish School. He is considered as being the last of the better class of Painters belonging to Madrid.

School of Seville.

There is preserved in the Cathedral at Cordova a small picture of the *Annunciation*, painted upon wood by one *Pietro*, a native of *Seville*, and bearing the date of the year 1500. This is, however, merely a matter of curiosity; and though some other names of the same period are preserved, they only serve to prove that Painting was rudely cultivated in these parts even at that day. The first person of note of

Lou s de Vargas.

whom we have any account is *Louis de Vargas*, who was living at Seville in the former part of the XVIth century. He had made a voyage to Italy, it seems, and studied there under Perino del Vaga; and such was his proficiency in the line of History, that there are those among his zealous countrymen who compare him to Raffael. We have honourable mention made, too, of

Paul de Cespedes.

Paul de Cespedes, who was born at Cordova in 1538, and became eminent as a Sculptor, an Architect and a Painter in fresco. He went too, as others did in his day, to improve himself in his Art, by studying in Italy, and placed himself under some of the followers of Michael Angelo; and there are specimens of his pencil yet to be seen in some of the Churches at Rome. In 1577 he returned to Spain, on the occasion of being appointed to a Canonry at Cordova; and it was between this city and Seville that he subsequently divided the remainder of his days. L. de Vargas certainly possessed a more Classical turn of mind than any of the other Spanish artists, and we cannot deny him the merit of being a good colourist. But in speaking of the Spanish School, we must regard with still greater feeling of interest those who never had recourse to foreign study, and who formed themselves with a truly national spirit, from resources purely their own. One such Painter we find at Seville, in this period,

Herrera.

namely, *Fr. Herrera*, (the elder,) many of whose Historical works are to be seen in the Churches at Seville. And though, as has been already related, Velasquez disdained him as an instructor, the traveller in Spain recognises in him a degree of skill and talent which does honour to his country. It was his son who was patronised by Philip IV., and, though professedly a Painter of History, was so successful in still-life pieces, particularly fish, &c., that he obtained the name of *Il Spagnolo delli pesci*.

Spanish School.

Alphonso Cano was born at Grenada in 1601, and lived and painted chiefly at Seville, though there are few Churches or Convents in Madrid, Grenada, or Cordova, that do not possess some specimens of his pencil. He studied in Italy; and it is not uncommon to hear his works in Sculpture compared to those of Michael Angelo, and his Pictures to those of Albano; and from these expressions, though we may not be prepared to admit the justness of the application, we may yet be enabled to form some idea of his style and manner in those two lines of Art. We must also add, that, like some of the Florentines, he studied in a third department, and was a Professor of Architecture. He left behind him a very numerous band of scholars, and certainly must be considered as having greatly contributed to the success of the Arts in Spain. *Michel Jerome Cieza* is the one of his scholars who comes nearest to his master's style.

Cano.

Fr. Zurbaran, the Spanish Caravaggio, as he is called, was born in 1598, and formed himself chiefly by copying the Pictures of that master which were to be seen at Seville, for he never travelled to Italy. His chief works are, the Pictures over the high altar in the Church of St. Thomas at Seville, the Paintings for the Convent of the Carthusians at Xeres, and the *Labours of Hercules* for the Retiro at Madrid. *Barnabi d'Arzala*, and the *Polancos*, were among his best scholars.

Zurbaran.

P. Moya was born at Grenada in 1610, and first learned the principles of his Art at Seville; but in the course of his journey to Flanders, he saw some of the works of Vandyke, and thenceforth would study no other master; he even went to England, in order to place himself under his instruction. Some of his works are in the Churches at Grenada, for he was a Historical Painter; and there are many others in the hands of individuals both in Spain and England. *J. Athanasius Bocanegra* came nearest of any succeeding Painter to the style of Moya and Vandyke.

Moya.

Barthélemy Esteban Murillo however is the chief glory of the School of Seville. This great artist, for such he is universally allowed to be, was born in the year 1618. With regard to his earlier studies it is worthy of remark, that he did not, as his predecessors had done in general, form himself upon the Italian model, but turned his attention to the Flemish Painters, or rather, as the last-mentioned artist had done, addicted himself to the principles of Vandyke. It is said, in fact, that it was from the visit of Moya to Seville, that he first gained an idea of what might truly be called excellence in Art; or, in other words, that line which he followed was the only one wherein were displayed those peculiarities which were congenial to his own natural ideas. Launching into the world without money or even friends, we see this young man sitting down and painting a few pieces of canvass, which he sold to a hawker to be carried out to the Indies, and with money thus raised he went to Madrid, and introduced himself to Velasquez. Velasquez was at this time a great man about the Court; but, far from being offended with his conduct, or feeling as a more vulgar mind might have done on such an occasion, he received him at once with kindness and even fami-

Murillo.

Painting.

liarity; taking care to lay open to his inspection all the choicest works in the Palace of the Escurial. In consequence of the advantages thus offered to him, we learn that Murillo staid there three years, and, from his studies and diligence so unremittingly pursued at the Capital, started at once as a finished Painter. This kind act of Velasquez was a moral lesson to Murillo, which he never suffered to be obliterated from his mind, and he, too, in his turn, when afterwards he had risen to eminence, always showed a generous readiness of disposition to every young artist who was presented to his notice. He it was, indeed, who first formed the project of establishing an Academy of design at Seville, which he finally succeeded in accomplishing, in spite of the great opposition with which he met. Murillo exhibited great talent, both in Historical composition and in the more homely figures of common life. As to style of design, he is one of those whom the Italians call a *naturalista*, that is, without any pretensions to Classical grace; but the truth and strength of character that pervade his Pictures, give him with the world in general a higher recommendation; to this he added a force and richness of colour equal to the best productions of his mighty prototype. The greatest and most perfect Painting by Murillo is said to be the *St. Antony of Padua*, which is placed in the Cathedral at Seville, and for which he received no less a sum than 10,000 rials from the Chapter. Some of his Pictures are to be met with in the Royal Palaces in Spain, and almost every collection of note throughout Europe will afford some example of this great master. It may be said that no artist, if we except Rubens, ever had the reputation of painting so many Pictures as Murillo.

His pupils.

Of the pupils of Murillo whose Pictures are often confounded with his, it will be sufficient to mention the names of *Antolinez*, *Villa Vicencio*, *Tobar*, *Menesco*, *Osorio*, &c. *Sebastian Gomez* is, perhaps, still more successful in his imitations.

Another follower of the style of Vandyke and Rubens was *Nino de Guevara*, who also lived in the XVIIth century; if, indeed, it is fair to introduce any such person as a parallel to the name of Murillo. We may close our account of the School of Seville with the names of *P. Camprobin* and *J. Arellano*, Flower Painters; *Joseph Antolinez*, (scholar of Ricci,) a Painter of Landscape, and *Henri des las Marinas*, as his title imports, a Painter of Sea-pieces.

School of Valencia.

Nicholas Factor (*le béat*,) the Painter of *Madonne*, is the first name on the catalogue, in point of time, at *Valencia;* he lived early in the XVIth century. Of still more note, in regard to the degree of skill which he attained, was the *Pere Nicholas Borras*, who filled the walls, cloisters, altars, &c. of the Convent of St. Jerome di Gaudie at Valencia with his Paintings. He seems to have been indebted for his greatest proficiency in the Art to his acquaintance with

Joanes.

the celebrated *Vincent Joanes*, a person of whom it is our duty next to take notice. Joanes, who is the glory of the School of Valencia, was born in 1523. He studied in Italy for some time, according to the fashion of the day, and there he learned to imitate, and not unsuccessfully, the manner of Raffael; so much so that some have supposed him to have been his pupil; the date of his birth however renders this impossible. The piety of his feelings deserves to be recorded, as well as his skill; for the same fact is related of him as of Louis Vargas, namely, that before entering upon a sacred subject he invariably prepared himself for the task by taking the Sacrament. At the Palace at Madrid are six magnificent Pictures by Joanes, representing the *History of St. Stephen;* and many of his works are to be seen in the Churches at Madrid, Segovia, Valencia, &c. His manner of Painting is not altogether free from restraint, but still there is so much of energy, such skill in foreshortening, and such a flow and fulness in his draperies, as to make ample amends for this fault, and banish the imputation of poverty or servility from his style: his colouring, as might be expected, savours much of the Roman School. He had a son, *Vincent Jean de Joanes*, who must not be confounded as a Painter with his father, to whom he was greatly inferior in talent.

Spanish School.

Matarana and *Yavarri* were also respectable Painters of Historical subjects at that day, and chiefly in fresco. There were, too, three Historical Painters at Valencia of the name of *Zarinena.*

The Venetian style and manner of Painting seems at all times to have had great attractions for the Spanish artists; but there are few, if any, amongst their number who were more successful in seizing its peculiarities than *Petro Orrente*, of Montalegre, in Murcia. His favourite master was Bassano, and it was after his fashion that he used to paint both Historical subjects and those of common life. Examples enough are to be met with at Toledo, Madrid, Cordova, Badajoz, Valencia, and in his native Country; those which gained him the most admiration are eight designs from the Book of *Genesis*, in the possession of the family of De Huertas: he lived in the latter part of the XVIth century. Contemporary with Orrente was the Augustan friar, *Leonardo*, a Painter of History, Portraits, and Battle pieces. He received a commission from the General of his Order to decorate with Paintings his Convent at Madrid; and he was employed also in many works at Toledo, Cordova, Valencia, &c.

Ribalta.

Francis Ribalta was born in 1551, and chancing during his state of pupilage to fall in love with the daughter of his master at Valencia, and being refused the honour of her hand, he betook himself to Rome; probably as much for a diversion of his thoughts, as for the purpose of making himself considerable by his talents. There he employed himself in copying the standard Pictures of Raffael, the Caracci, and more particularly those of Sebastian del Piombo; and at his return, so gratified was his master by the talent he displayed, and so satisfied that he would make his way in the world, that he freely gave him his daughter in marriage. His colouring is rude, but in Drawing and composition he is excelled by few; and so much are his Pictures esteemed at Valencia, that the citizens of that place very unwillingly part with any of his works. He painted also for many of the Churches at Madrid, Valencia, Segovia, &c. *Castaneda* and *Bausa* were his

His pupils.

best scholars. His son, too, *Johan Ribalta*, equalled his father, though he exerted his talent in a different branch of the Art, confining himself almost wholly to Portrait Painting. *Hyacinthus Jerome de Espinosa* also is said to have been a pupil of Ribalta, born in 1600; he painted Sacred History in good style; but there are three other Painters of this name and family, who were also Historical Painters. *Stephen March*, or *March des*

S. March.

Batailles, so called from the usual subjects of his pencil, acquired great fame from the bustle and spirit of his designs, as well as from their colouring, which

Painting

resembled that of the Venetian mode. He had a pupil, named *Sotomayor*, of considerable merit in the same line.

Mathieu Gilarte a Painter of History, was a pupil of one of the Ribalta School, who served to keep alive the memory of that great artist: his Pictures are in most of the Convents of Murcia, Toledo, and Madrid; he was born in 1648. We must not omit the name of *Augustus Gasal*, who was formed in the School of Carlo Maratta at Rome, and whose heavy manner he followed: his Paintings are to be found chiefly in the Convents and Churches of Valencia, where he died at the beginning of the XVIIIth century. *Don Vincent Victoria* (the Canon) was a scholar of the same, and many of his Pictures, both in Italy and in Spain, pass under the name of that master.

FRENCH SCHOOL.

The art of staining glass with a variety of permanent colours was, as we have before mentioned, the invention of a Frenchman, William of Marseilles; but except in works of this description, which, however beautiful in themselves, are of a totally distinct nature from the usual studies of a School of Painting, little or no progress appears to have been made in France before the day of Francis I. We find, indeed, the name of *Jean Cousin*, who was born at Soucy near Sens in 1462, the author of certain Treatises on Art, and a few samples of whose practical talents are preserved by the engraver. We have also the name of *F. Clouet* or *Janet*, a Portrait Painter, and, in the Historical department, those of Dubreuil and Freminet, who were flourishing towards the middle of the XVIth century. But with the reign of Francis I. was introduced a new and more brilliant æra of Art. That monarch commenced his patronage by inviting Italian artists of high reputation to reside at his Court, *Rosso*, *Nicolo del Abate*, and *Primaticcio*; their style was captivating, and became fashionable; and thus, through a rage for Italian study and Italian taste, was developed the latent germ of native genius in France. The first Painter of eminence who was thus brought forward was *Simon Vouet*, the son of a Painter at Paris, born in the year 1582. He was fortunate enough to meet with the patronage of the French Ambassador to Turkey, by whom he was carried to Constantinople, and afterwards sent to Italy, where he remained upwards of fourteen years; and let it be observed, that, though a Frenchman, his talents were such as to acquire for him even in that great seminary of Painters no ignoble name: the Picture of *The Assumption*, for the Chapel of the Chapter of St. Peter's, is reckoned one of his best works: there are many others, however, which have become familiar to the Public by the hands of the engravers. In the School of this artist were formed *Valentino*, *Le Brun*, *Le Sueur*, *Dufresnoy*, *Mignard*, *Testolin*, *La Hyre*, and many others, who in their day did honour to their Country. *Jacques Blanchard* was a contemporary of Vouet, but far inferior to him in originality and talent: he, nevertheless, gained a great reputation from his successful imitation of the Venetian style, his compositions abound with female forms, and he gained the name of the French Titian.

Vouet.

His pupils.

Jacques Blanchard.

A still greater artist next appeared, namely, *Nicolas Poussin*, who was born at Andely in Normandy in 1595. The greatest part of his life was passed at Rome; and by his unceasing application, during his residence there, he formed for himself a more truly Classical and learned style than any other Painter upon record, scarcely excepting Raffael himself. Still, it was not a cold or tame and lifeless grace which his figures exhibited, but a full nervousness of expression, that showed the deepest knowledge not only of the external and anatomical movements, but also of the inward emotions of the human heart. We have in England, in the collection of the Marquess of Stafford, some of his most perfect pieces, namely, *The Seven Sacraments:* engravings of his other more celebrated pieces, such as *The Deluge*, *The Philistines smitten by the Plague*, *The death of Germanicus*, and *The discovery of Moses*, are in the hands of all amateurs, and give a better idea of his style than any words can express. N. Poussin had no actual scholars under his charge, but there are few Painters of France of his day who were not indebted to him for advice; and still fewer of any day who have not profited by his example: we may safely say, indeed, that his manner gave the turn and fashion in France to all the artists that came after him; in short, the Poussinesque style is as truly the characteristic of the French School as the Raffaelesque is of the Roman.

Nicolas Poussin.

French School.

We may mention *Jacques Stella* of Lyons, a friend of Poussin, as one who closely and successfully imitated his manner of composition; he was patronised by Cardinal de Richelieu. Many of the first People of the Court seemed to have imbibed a taste for Art from the example set them by Francis I., and there was no want of patronage to a young artist who displayed at this period any symptoms of talent.

Stella.

Francis Perrier, a native of Burgundy, born in 1590, went to Italy, and placed himself for a while under Lanfranc; but his unfortunate instability of disposition became his ruin, and he painted but very few Pictures, being at this day known in the world chiefly as an engraver. *Francis Blanchard*, of Paris, is recorded as a Painter of History about this period, and a very respectable if not a great one. He too studied in Italy, and followed the manner chiefly of the Venetian School. To these we may add *Jean le Maire*, a Painter of perspectives, and *Jean Mosnier*, a glass Painter. They also went through their course of study in Italy; for it seems as if fashion had now made this journey an absolutely necessary part of almost every Painter's education.

Perrier

F. Blanchard

The next person whom we shall mention is one who did honour to his foster Country, and who deserves to be remembered by all his countrymen for his talent; the traveller in Italy will recognise a very beautiful Painting from his hand, which has the honour of a place in the collection at the Vatican Palace. His name is *Moise le Valentin*, or *Valentino*, as he was called more usually by the Italians; he was born at Coulomiers in 1600; it appears that he left the School of Vouet, at Paris, in order to study in Italy, where he became a great admirer of M. Caravaggio, and after his fashion painted his figures in a strong, forcible style upon a dark or rather black background. His *Concert*, *Judith with the head of Holofernes*, and some few other of his Pictures, are well-known.

Valentino

J. Bapt. Mola, or *Mola da Francia*, for he too was a Frenchman born, was another of those who abandoned the School of Vouet for those of Italy: he may be remarked, however, as having adopted a style directly opposite to the last-named artist, becoming a follower of the graceful and soft Albano; many of his Pictures are, indeed, often

Mola.

Painting.

passed under the name of that great master. *Jacques Callot*, also, whose little military pieces, the *Temptation of St. Anthony*, &c., are so universally admired, was of this day, and, like the others, studied in Italy. We might mention, too, *Ferdinand Elle*, who as a native of Malines rather belongs to the Flemish School, yet constantly resided at Paris, and is but little known elsewhere. He painted Portraits chiefly. He left a son behind him in the same line, usually known under the name of *Ferdinand the younger*.

Callot.

Elle.

Up to the time of which we now speak, the Painters in France seem generally to have exercised all the several branches of the Art of design; this appears evident upon considering the very various specimens sent by them as their contributions to the earlier exhibitions of the Royal Academy of Paris. Many difficulties, it seems, here, as in other Capitals, stood in the way, and much was to be done before this establishment was settled on a proper foundation. The name of the Academy, indeed, existed as early as the year 1648; but, notwithstanding, it is quite clear, that it was not till seven years afterwards, that letters patent were obtained for its formation under Louis XIV. In his reign it received great encouragement, its funds were large and numerous, and Chairs and Professorships, and honours of various sorts, were accorded to it. A most important addition was afterwards made to it, by the establishment of a second Royal Academy of France, in the seat of the Arts, at Rome itself; where young French artists, who were deserving of patronage, might be received and assisted in their studies. This plan was not finally accomplished until the year 1765. The Palazzo Medici on the Monte Pincio, having then been purchased for this purpose, is the present residence of the young Frenchmen during their period of study at Rome.

Royal Academy of Paris.

Le Sueur, one of the most zealous partisans of the Academy, and who uniformly supported its interests against those who were adverse to its formation, was born in the year 1617; and his name is commonly mentioned by the French writers with more than ordinary delight, as affording the best specimen of what pure, native French talent has been able to effect. It is true, indeed, that he never studied in Italy, but at the same time it is evident to the most casual observer of his works, that he must have formed himself chiefly by attention to the works of Italian Painters; and though there are few who have been provided with a greater stock of invention and natural feeling, yet, again, there are few who exhibit in their compositions such strong lineaments of imitative Classical study. His colouring is not forcible, but still possesses a certain degree of harmony, which soothes the eye of connoisseurs, and makes them forget his faults. Harmony, indeed, and milder affections of the soul seem alone to be natural to Le Sueur; but still he was sufficiently powerful to excite, by the manner of his design, a strong interest in the mind of the spectator, and may be fairly classed among the best of those whom a Roman would place at the head of the Transalpine School. He died at the age of thirty-four, but left even in this short life many works to attest his ability and skill: of these we may mention the *Life of St. Bruno*, *St. Paul preaching at Ephesus*, *The Martyrdom of St. Laurence*, *Our Saviour with Mary and Martha*, *Our Saviour carried to the Sepulchre*, and *Alexander receiving the cup from the hands of his Physicians*; most of which have been made known to the public by the labour of the engraver. *Nicolas Colombell*, of Sotteville, was his only scholar who attained any great name.

Le Sueur.

French School.

The name of *Claude Lorrain* has of late years been inserted in the catalogue of French Painters, but they have little claim to this great man, since his native province was not yet annexed to France: it does not appear indeed that he ever set his foot within the limits of the French Monarchy, and his style was formed where his life was almost wholly passed, namely, at Rome.

Claude

The name of *Dufresnoy* is known rather from his Poem on the *Art of Painting*, than from the specimens of his pencil, and therefore may be passed over in this brief History of the Art; but the next name occurring on the catalogue, is that of one of the most distinguished French artists, namely, *Sebastian Bourdon*. He was one of those instances of precocious talent whose life, contrary to vulgar prejudices, was prolonged so as to enable him to justify the promise of his early years: he was born at Montpellier in 1616, and at the age of fourteen designed and executed in good style, as it is said, a *plafond* in the house of a gentleman near Bourdeaux. In a later period of his life, after his return from Italy, we find him equally happy in his composition in all the three chief branches of the Art, in History, Landscape, and Portrait; while it may fairly be said, that his imitations of Poussin, Caracci, and Sacchi, are of a nature to deceive the eye of even an experienced connoisseur. *Jacob carrying away the idols of Laban*, *The Virgin and Child*, *The Seven Labours of Piety*, and some others, have been engraved; and a beautiful Landscape, given by the late Sir G. Beaumont to the National Gallery in London, is familiar to the public.

Dufresnoy.

Bourdon.

Owing to a reputation which was enhanced beyond its due merit, by the favour and partiality of the Court of France, there are few Painters of that Country whose names have a more extensive reputation than that of *Le Brun*. He had some talent, certainly; but he will be quoted always by the judicious connoisseur, as affording a sample of the worst style of Historical Painting that ever forced itself upon the public notice; *Le Brun peint a nos yeux le fier et le terrible*, says the Poet, nor can we characterise his style better than by these two words: and yet it is not that sort of fierceness and terror which interests us in looking at a Picture, it is one continual bustle, that distracts the attention, and offers no rallying point for the Imagination or the feelings. Repose is a quality utterly banished from his works; and though he represents, in some of his Pictures, the Passions of the Soul, and even wrote a Treatise upon the subject, it is only in their vulgar and most staring forms that they are ever depicted by him on the canvass. No one is farther removed from the Poetic dignity of the Art, which alone enables it to interest and ennoble the mind. He gives the most perfect sample of that deficiency of sedateness and grandeur of style, which the Classical Winckelmann describes, by borrowing from the Ancients the term *parenthyrsis*.

Le Brun.

Verdier, *Houasse*, and *Audran*, were the scholars and assistants of Le Brun, whose style they imitated with but too much servility: indeed, it may be said, that in consequence of the splendour of a name honoured as his was by Court favour, his style not only became the fashion of his own day, but has stamped a character on the French School, which it retains in great measure even to this time; and in spite of the ingenuity of modern declamation and the judgment developed by modern

His pupils.

Painting. connoisseurs, the annual exhibitions at the Louvre savour more strongly of the fierceness and audacity of Le Brun, than of the chaste energy of Poussin.

Mignard. *Peter Mignard* and *Nicolas Mignard*, two brothers, born at Troyes, and both distinguished Painters of Portrait and History, flourished during the earlier part of the XVIIth century. Peter, however, who studied for many years in Italy, was the more celebrated of the two: he succeeded Le Brun in his place of Chief Painter to the King of France, and some splendid specimens of his talent are still to be seen in the Royal Palace at Versailles; where the connoisseur will observe, that if he fail in force and dignity of expression, there is yet a softness and harmony of composition, and freshness of colouring, demanding our admiration.

Lenains. The two *Lenains*, *Louis* and *Antony*, were excellent Portrait Painters, and they have left behind them also some groups of figures, designed in a picturesque style, which are remarkable for their freshness of colouring, and happy facility of expression: they died about 1648; little else is known of their history.

Philip de Champagne *Philip de Champagne* belongs, by birth at least, to the Flemish School, but he passed the greater part of his life at Paris; and his Portraits, or compositions containing few figures, possess great merit.

Bourguignon. *Jacques Courtois* or *Bourguignon*, (as he is usually called,) is well known from his spirited Battle pieces; he passed the best of his days, and painted his best Pictures, in Italy. He left behind him a successful imitator, in his countryman, *Joseph Parrocel*, who, upon his return from his studies in Italy, obtained employment at the Court under the reign of Louis XIV.; this was at the time, too, that *Vandermeulen* had long enjoyed the chief favours of his Majesty, and was regularly retained by him to detail with his pencil the military glories of the day.

Parrocel.

Coypel. *A. Coypel* was one of the best Historical Painters of Paris towards the end of the XVIIth century; in his Pictures we first trace the appearance of French faces and French manners in the personages represented on his canvass; a fault which afterwards became very common amongst the secondary Painters of the French school: Athaliah, Jephthah, Solomon, Susannah, Venus, &c., are all so many French men and French women in disguise, as may be seen in the engravings after his works. There were four artists, however, of some note belonging to the family of *Coypel*; nor were the stocks of *Hallé*, *Boulogne*, and *Detroit*, much less prolific in Painters, though their fame is not very much extended beyond the limits of France.

De Lafosse. *De Lafosse* deserves our notice for the neatness of his colouring; some of his chief works were his Paintings at the Palaces of Versailles and the Trianon, and he was also much employed in England by the family of the Duke of Montagne.

Pesne His nephew, *Ant. Pesne*, was a respectable Portrait Painter, who established himself in the service of the King of Prussia at Berlin, where he finished his days.

Jouvenet. *Jean Jouvenet* is celebrated for his Picture of the *Descent from the Cross*, which is said to be one of the best compositions of the French School: many other of his works have been engraved, and it must be confessed, that he is not devoid of originality or greatness of manner: he died in 1717.

Sophie Cheron. At the same time flourished *Sophie Cheron*, who attained a high and deserved reputation in her day: her style of design was tasteful, and her colouring excellent: it was her brother, *Louis Cheron*, who was driven to England at the time of the Revocation of the Edict of Nantes; his works are often to be met with, and never fail to attract our attention by their very Classical and pure style of design: we have many of his designs in one of the large-sized editions of the Bible used in Parish Churches.

French School.

Louis Cheron.

Another French artist, who found employment in England at that time, was *Nicolas de Largillière*, who even at the early age of eighteen surprised the King, Charles II., by the vigour and freedom of his pencil: he did not live in England, however, but went back to his native Country, where he attained the favour and applause of his brother Academicians, though he cannot be said to have been honoured by the patronage of the Court.

Nicolas de Largilliere.

Hyacinthe Rigaud, a native of Perpignan, gained great admiration at Paris, for the beauty of his Portraits. Rigaud is the Vandyke of the French School, as *J. B. Monnoyer* is their Van Huysum: there are, perhaps, few men who have attained greater reputation in this line: he was generally assisted in his labours by his relative and scholar, *De Fontency*, who perhaps painted with more truth and fidelity, if with less of Poetical spirit than his master.

Rigaud

Monnoyer.

DeFontene.

The Pictures of *Watteau*, whose name next occurs in the list, are *bouquet*-like in point of the exquisite effect of their colouring: though, perhaps, they enchant us still more by the lively comic grace of his figures, and the spirit of his design.

Watteau.

Le Pautre, *La Fage*, *Le Maire*, *Le Moine*, *Cazes*, *Raoux*, *Nanteuil*, *L. Ferdinand*, &c., as Painters of Portrait or History; *Petitot*, as an Enamel Painter, *J. Forest*, *J. Rousseau*, his pupil, *Meusnier*, and *P. Patel*, as Landscape Painters, and many other artists of a secondary rank, were flourishing about the end of the XVIIth century, and beginning of the XVIIIth, at a time when the Court had shown a most indulgent spirit of patronage for the Art, and almost every great officer of State, every farmer-general of the finances, every prelate of the church, or even every banker of eminence, became anxious to signalize his wealth or his taste by becoming a purchaser of Pictures, and an amateur of the *beaux arts*.

Some of the best works executed at this time at Paris were the architectural pieces of *Servandoni*, a native of Florence, and pupil of P. Panini: and of those of the native Painters, we may mention the *Brazen Serpent* by *P. Subleyras*, a Picture which displays talent of a high order. Some other valuable Paintings by this artist are now to be seen in the Louvre.

Subleyras

Of merit scarcely inferior are the Historical compositions of *Fr. de Troy*; his *Salmacis and Hermaphroditus*, *Solomon and the Queen of Sheba*, &c. Those of *Restout*, also, (in spite of an almost tedious mannerism, displaying itself in a certain precision and angularity of design,) are pictures of merit.

De Troy

Restout.

Fr. Boucher, a scholar of Le Moine, gained also a great name at Paris; and there are few artists whose works have been more largely made known than his have been by the assiduity of the engravers; but his reputation was chiefly obtained by the facility with which he represented the graces of the female sex, and by scenes in which their unveiled charms might be exhibited to advantage; he sought, in fact, to allure purchasers by exciting their passions, because he was unable to produce any admiration by his taste or skill. He had many

Boucher

Painting. scholars and followers who were successful in his style, if success it may be called,—for it was only success in finding a vent for their productions,—these were *Bourdouin*, *Mettai*, *Des Hayes*, *Fragonard*, and *Juliard*, who was also a tolerable Landscape Painter, and *Le Prince*, a Painter of Pastoral pieces, &c.

The names, however, which reflect the highest honour on the French School, in the middle of the XVIIIth century, are those of *Vernet*, *Chardin*, *Greuze*, and *Latour*.

Vernet. The Sea pieces of *Vernet*, for the boldness of his design, and the strength and force of his effect, are beyond all praise; but he introduced, it must be confessed, a certain air of artificial peculiarity not only into the attitudes of all his figures, but even into his tone of colouring. He may truly be called a complete French Painter.

Chardin. *Chardin* painted Portraits, animals, fruits, figures, &c., all with the same true spirit of execution, happi-

Greuze. ness of touch, and fidelity to Nature. *Greuze* succeeded chiefly in his fortunate power of seizing and portraying the more common and familiar emotions of the soul; his subjects are not heroes or demigods, but are usually taken from the middling classes of common life, and there are few people that will not feel a sympathy in the scenes which he represents: he stands alone in

Latour. the French School in this walk of Art. *Latour* excelled only in the use of the crayon, but by his spirit and truth of manner he gained a well deserved name. Louis XV., the Dauphin, Voltaire, and many other persons of rank and fame, were painted by his hand.

Vanloo Under the name of *Vanloo* we have Charles, the son of a Painter at Nice, born in 1705, and who had completed his studies under Benedetto Luti at Rome. At Paris he soon excited public attention, received the honourable appointment of chief Painter to the King, and was decorated with the Order of St. Michel. *The flaying of Marsyas*, *The chaste Susannah*, *The Three Graces*, &c., are among those of his works which are most known, and best deserve to be so. He must be regarded, however, as a man shining in consequence of the weakness of his competitors and contemporaries in the profession, rather than by the vigour and force of his own ability. His scholars are *Lagrenè*, (the elder,) *Doyen*, *Julien*, *Olivier*, &c. His brother, *Charles Philip Vanloo*, and his son, *Louis Michel Vanloo*, both were Painters of Portrait and History: but the chief glory of the family is derived from *J. B. Vanloo*, of Aix, born in 1684, but who of course does not belong to this School, at least if we regard the locality of his birth.

We may close the list of the School of France with the names of *Nicolas Lancret*, a successful Painter of familiar scenes, and a pupil of Wattean; *J. Pillemont*, a tolerable Painter of Landscape; *Robert*, a Painter of architectural ruins and picturesque compositions of that

David nature; and, though last not least, *David*. The works of the last are full of the restlessness of the style of Le Brun, and are familiar to all visitors at Paris of the present day. Yet here it is but fair to say, there appears to be more talent in the Painters now living, and more promise of honour to the French School in the Historical line, at least, than the latter part of this sketch would have led us to infer. They must be allowed to have succeeded, in some respects beyond their contemporaries, either in England or yet in Italy. If we were to hazard a critique upon them, we should say, that the line they have adopted savours too much of an artificial imitation of the antique on the one side, and of theatrical gesture on the other; and they certainly never succeed in entirely divesting themselves of a certain Frenchified air, as to the attitudes of their figures, which stamps them, in spite of their real merit, with incontrovertible marks as the most decided mannerists of the Age.

English School.

ENGLISH SCHOOL.

The most diligent researches of the Historian afford but few notices of native British artists, or, at least, of such as deserve that name, previous to the XVIIIth century: and certainly there are none who can, as to their style, boast of a character of their own, or who possess such merit as to enable us to speak of them as forming a School of Painters. From the earliest times it seems to have been the custom, both with the Court and with the Prelacy, to send for foreigners either from Italy or from the Low Countries, for the execution of any important pictorial decoration. Thus were introduced P. Cavallini, in the reign of Henry III., and in after-times John of Mabeuse, H. Holbein, Lucas de Heere, Marc Willems, Sir A. More, C. Ketel, F. Zucchero, Gentileschi, Honthorst, C. Jansen, Rubens, Vandyke, Vandevelde, Sir P. Lely, and Sir Godfrey Kneller; and a host of other foreigners, with whom it was difficult for the homeliness of native skill to maintain a struggle. The very names of the workmen and inferior artists employed in the more mechanical part of the works intrusted to the Painters just mentioned, appear in early times to have been generally foreign, and the Art seems to have been regarded as a mystery of a rather occult nature. We must suppose, however, that the example afforded by the labours of such illustrious strangers, and the extreme admiration excited by their works, would have some effect in exciting a spirit of emulation, or, at least, of imitation, amongst our Countrymen; and to this circumstance we are indebted for the formation of those few British artists who, though of an inferior description, are all that this Country can boast of in days of yore. Such was *Master Walter*, employed by Henry III. upon certain Paintings in the Palace at Westminster. Such was *John Thornton*, of Coventry, who painted the east window in York Cathedral, during the reign of Henry VI. Such were *Andrew Wright* and *John Brown*, Serjeant Painters, as they were called, and Members of a chartered Society, which was formed in the reign of Henry VIII. Such, in the succeeding reign, was *John Bossam*, of whom, however, we know nothing more than is to be gleaned from the commendatory remarks of a contemporary artist. Such, too, was *Hilliard*, in the reign of Elizabeth, who has some little claim to our notice, as being one of the masters of Oliver.

Isaac Oliver is the first British artist on record of Oliver. whom we can safely speak with any degree of commendation; and whencesoever his family was originally derived, for this is a disputed matter, he, at least, was certainly born on our soil. His province was Portrait Painting in miniature, many specimens of which are now preserved. Those of his works which are most known, are a head, supposed to be that of *Mary Queen of Scots*, and others of *Queen Elizabeth*, *Ben Jonson*, &c. He died in 1617, leaving a son, *Peter Oliver*, who imitated his father's style with much success.

Painting. *Thomas* and *John Betles* also were living in this reign, and painted Portraits with much truth and fidelity of manner,—their fashion being evidently built upon the taste introduced by Zucchero, or some other Italian. *Lyne*, *Peake*, *Arnold*, *William* and *Francis Segar*, and *Peter Cole*, also are chronicled as Painters of renown in this reign; but, as to their deserts, they may be passed over. We find that the munificence of Charles I. and his Court, called forth some latent sparks of genius from amongst our countrymen, but even these artists were formed after the examples and precepts of the foreigners who were then so largely employed in England. The decoration of the Banqueting-house at Whitehall, the purchase of the Pictures of the Duke of Montrose, and the encouragement and patronage given by the Court to such men as Rubens and Vandyke, inspired a new feeling into the People of England towards the Arts of design, and left an impression the effects of which were visible during the succeeding Age.

Dobson. *William Dobson* was born in 1610: he came to London while young, and some of his Pictures, exhibited for sale, having by chance attracted the attention of Vandyke, that great artist had the generosity to recommend him to the favour of King Charles. From that day his fortune was secured, for he had merit enough to ensure his success, as soon as an occasion of displaying his talent was offered him. He gave so much satisfaction to his Majesty, that he finally succeeded, at the death of Vandyke, to the place of Serjeant Painter. He painted both Portrait and History; and his *General Monk*, &c., at Chatsworth, and *The Beheading of St. John*, at Wilton, may be mentioned here as being among the best specimens of his skill in these two departments of Art: as to merit, he may be classed (and it is no small honour) among the most successful imitators of Vandyke.

Jameson. *George Jameson* was a pupil of Rubens, whose manner he chiefly followed: most of his works are to be found in the seats of his Countrymen in Scotland, and, if not quite equal in beauty to the pieces of the last-named artist, they are of a degree of merit by no means to be despised.

A. Cooper. *Alexander Cooper*, an excellent drawing by whom, representing *Acteon and Diana*, is preserved in the collection of Pictures at Burleigh, was also an eminent native artist who flourished in this reign, as likewise

Hoskins. did his uncle, *John Hoskins*, a Portrait Painter.

After these we may mention *Robert Walker*, a Portrait Painter, who was much noticed and patronised by Cromwell, during his usurpation. The Protector had his Portrait taken both by *Walker*, and another Painter of the name of *Edward Mascall;* as well as by *Sir P. Lely*. *Samuel Cooper*, and *Gibson*, the Dwarf.

Fuller. *Isaac Fuller's* inimitable Picture of himself, when in a state of intoxication, will be called to mind by every one who has visited the Picture Gallery at Oxford. He showed more talent as a Painter of Portrait than of History; nevertheless, there is a Historical composition from his hand, executed in *chiaro-oscuro*, at the altar of Wadham Chapel in the same University, which shows no mean talent, even in that arduous and difficult province of Art.

We must have recourse to the same University, for illustration of the manner of the next Painter on record,

Streator. namely, *Isaac Streator*, Serjeant Painter to his Majesty, who designed the pictured ceiling of the Sheldonian Theatre: it is a remarkable fact, that these men, who were two of the chief Painters of the reign of Charles II., made their early studies not in Italy, as was the general fashion, but in France,—the one placing himself under Perrier, the other under Du Moulin. We may here also mention the name of *Henry Anderton*, though there is not much more to be said of him, except that he was a pupil of Streator, and obtained favour at the Court. English School.

Sir P. Lely became in the latter part of the XVIIth century the great artist of the day, and though we cannot class him in a catalogue of British artists, (for he was a native of Westphalia,) he formed many scholars among the People with whom he settled, and influenced more, perhaps, than any other man the progress of the Art in Great Britain. Of these *John Greenhill*, of Salisbury, may be named as the best: specimens of his manner may be seen in any large collection of engravings; also *Thomas Sadler*, a favourite of Cromwell, who, upon the Restoration, was in the latter part of his life obliged to have recourse to the profession of a Painter for his subsistence; nor did he discredit the Art which thus adopted him. *Davenport* was another of his scholars, who, however, died young; another was *John Dixon*, a Painter in miniature and crayons. An imitator, too, if not a scholar, was *Mrs. Beale*, who painted several Portraits of distinguished personages of the Age, some of which are in the possession of Lord Ilchester, at Melburn. *Richard Gibson*, the Dwarf, was an imitator also of Lely, being almost wholly formed upon his model. Lely. His pupils.

Of those who were formed on a more liberal system than the trammels which Court fashion and favour had imposed on the Art, we may quote the names of *Michael Wright*, a Scotchman, who was employed to paint the Judges in Guildhall; *Henry Cocke*, sometime a scholar of Salvator Rosa in Italy, the Painter of an equestrian Picture of Charles II., at Chelsea College; and *John Riley*, who came into notice at the death of Lely, to whom he can scarcely be said to be inferior. Both Charles II. and James II. sat to him for their Portraits; but perhaps his best Picture, after all, is that of Lord Keeper North, at Wroxton Abbey. Far beyond these, however, in fame, is the name of *Samuel Cooper*, who is well described by H. Walpole, as "owing great part of his merit to the works of Vandyke, and yet an original genius, as he was the first who gave the strength and freedom of oil to Miniature Painting." He lived a long time in France and Holland, but died in London in the year 1672, and was buried at St. Pancras Church: he is, perhaps, the first instance of an English Artist who met with employment and favour at a foreign Court, as he is reported to have done at that of Paris. S. Cooper

We now come to the opening of the XVIIIth century. The days of *Sir Godfrey Kneller* had passed away, but yet long cylinder waists, and balloon gowns, and branching caps, and five-curled perriwigs, remained; and the artist was incumbered with difficulties of dress that seemed almost insurmountable to a lover of the picturesque. *Jervas*, who had studied awhile under this artist, seems, as we learn from Pope, to have stood highest in the public estimation in the reign of George I.; he deserves, however, but little credit: *Richardson*, at least as far as painting a head may qualify him, was a better artist; and we may learn from his writings, that his ideas had attained a yet greater perfection than his hand was able practically to display. *Jos. Highmore*, another pupil of Kneller, is an artist now better known Kneller Jervas. Richardson. Highmore

Painting.

to the Public by the productions of the engravers, than from the works of his own hand.

Sir J. Thornhill.

Sir James Thornhill belongs also to this reign, whose designs, illustrative of the Life of St. Paul, for the interior of the cupola of the Cathedral dedicated to that Saint in London, and whose Paintings in the Hall at Greenwich Hospital, have made his style familiar to our recollections. If he does not attain any very high degree of merit, at least we feel a satisfaction in seeing that a native artist, who was of consequence enough to be selected for the execution of these public works, obtained that favour in the public eye, which had lately been lavished on foreigners alone. *R. Brown* was his pupil and assistant, and some original Pictures by his hand are to be seen in the Churches of St. Botolph Aldgate, St. Andrew's Holborn, and the Chapel in Bedford-row. *Ch. Collins* and *Luke Cradock*, also Britons born, deserve mention at this period for their pictures of still life, birds, game, &c.

Wooton.

About the middle of this century flourished *John Wooton*, a landscape painter, who had formed a very creditable style on the principles of Claude and Poussin; many of his pieces of this sort, as well as hunting and racing pieces, are to be seen in the country-seats of our nobility, at Badminster, and elsewhere. He died in the year 1761. *George Lambert* was afterwards a follower of his style and manner, and, perhaps, as good an artist as he.

Hudson.

Thomas Hudson was a very respectable painter of velvet coats, and tied-wigs, and satin waistcoats; besides which it must be said, that he now and then struck out a head with considerable truth and fidelity to Nature. Whatever were his merits, however, he certainly took the lead of the profession in England, until the day that his great pupil, Reynolds, arose, to teach the nation a new lesson on the Art.

We must not, however, suppose these times were otherwise devoid of that which may more immediately

Hayman.

deserve the name of native talent. *Frank Hayman*, whose designs for Newton's Milton are well known to every one, certainly was an artist of considerable ability: we might add, indeed, that his paintings for the Gardens at Vauxhall are examples such as will serve to prove that want of invention is not among the defici-

Worlidge.

encies of our national character. *Thomas Worlidge*, too, has left behind him some good Portraits both in miniature and in oil; and his etchings and imitations of the style of Rembrandt are deservedly held in the highest esteem, bearing a high price when offered for sale even at the present day.

It is time however to mention those illustrious names who are the boast of our Country in the XVIIIth century, and which give us the only title to the name of a British School of Art, namely, *Hogarth*, *Reynolds*, *Gainsborough*, and *Wilson*.

Hogarth.

William Hogarth was the son of a tradesman in the parish of St. Bartholomew, in London; he was apprenticed by his father to an eminent silversmith, but urged by that ardent passion for Painting, the early effects of which are so often related by the Biographers of artists, he devoted himself to this pursuit as soon as the term of his apprenticeship to the trade had expired. He soon showed talents, and found employment, though at first only among the booksellers, who engaged him in making various plates of illustration, and works of that nature; of this description, indeed, was the first work which gained him any great share of public approbation, namely, the Designs for Hudibras, which are found accompanying the common duodecimo edition, published about the year 1720. The Painting of *Modern Midnight Conversation* was an effort of a higher nature, and one which at once displayed the greatness of the talent of Hogarth; and at the time when his next work, *The Harlot's Progress*, was produced, subscriptions were poured in most eagerly from all persons and from all quarters, every one seeming anxious to see it engraved. This engraving was done by the hand of Hogarth himself; but so great was the demand for the plates, and so extensive their sale, that pirated prints forged by other hands were quickly brought forth, and the inventor was cheated of nearly half his reward. So highly was the subject in favour with the public, that it was not long before it made its appearance on the stage as a melodrame, which was performed many nights with infinite applause; the enthusiasm which it excited, redeemed England from any accusations of indifference to Art, or, what is still worse, fastidiousness to the produce of our own native realms. We need not follow Hogarth through the long and successful series of publications that ensued: every Picture which he conceived, showed that he, and he alone, of all that had yet been known, possessed the power of exhibiting the true spirit of Comedy upon the canvass; and hence he became remarkable, as being in some sort the author of a new department in the Art. Perhaps it would be more just to describe his line as the serio-comic, and in that phrase we shall see enough of distinction to prevent us from confounding his style with that of the humorous Painters of Holland or Flanders. His Portraits are not very common; but those which are now to be met with, for instance some at the Foundling Hospital, possess apparently a truth of character that has rarely been surpassed; they are also extremely well painted, in regard to the more mechanical part of the Art. In this respect, indeed, they possess higher merit, and are

English School.

er executed, and their colouring is more chaste than that of some of his other compositions. In his *Danae with the Shower of Gold*, and the *Sigismunda*, he afforded us a very strong and forcible illustration of the truth of the old adage, *Naturam expellas furcâ tamen usque recurrit:* either of the figures would have done credit to *The Harlot's Progress* or any other of his Pictures of that description; but neither the one or the other were at all in accordance with the grace of the Mythological story, or the ideas of gallantry which attach to Romance. Hogarth's *Analysis of Beauty* is an erroneous visionary Treatise, yet by no means devoid of merit; it contains, indeed, much matter that may be read with advantage. In private life Hogarth was an eccentric character, and showed, that if he thoroughly understood the foibles of the world in general, he had but too little bestowed his leisure in contemplating his own. He died in the year 1764.

Reynolds.

Sir Joshua Reynolds was of a character directly opposite to the last-named artist; he had, like him, indeed, talent enough to excite the attention of the Public, and, in fact, to create a taste and relish amongst his Countrymen for those graces of form and character which are so peculiar to his pencil. But these were of a directly opposite nature to the fancy of Hogarth. His style as a Painter may be said to be chiefly founded on the study of Corregio, assisted and enriched by gleaning whatever suited his purpose from the modern

Painting. Italian and French schools. In Portrait Painting he stands unrivalled, notwithstanding the very absurd and unpicturesque fashions and dresses which prevailed in his time, and which it required no small skill and ability to handle in a way fitted for the canvass. In his larger works, and generally in his attempts at Historical composition, we have to lament a want of skill in Drawing, which very materially detracts from the pleasure afforded by his Pictures: but there is still a grace of form, and a truth of character, together with a chaste and harmonious glow of colouring in all that he does, which forbids us to dwell too much on those faults which the keenness of criticism might detect. The collection of his works in mezzotinto plates, now in course of publication by his namesake Reynolds, is a noble monument of native British talent and taste, creditable to the engraver as well as the painter himself; and be it remembered, that the very distinguished Portrait Painters of the present day, who raise our name so far above that of any other contemporary School in Europe, as to that branch of the Art, may chiefly be considered as followers of this great man.

Wilson. *Richard Wilson* was a native of Wales, who was happily diverted from the profession of Portrait Painting, in which he had originally embarked, to the study of Landscape; and this change he is said to have been induced to make in consequence of the commendations which he received from Zuccarelli. The style he adopted was, indeed, an improvement upon the manner of that master; his principles and his objects are the same, but they are simplified as to light and shade, and even to colour, in a way to which the foreign artist was wholly a stranger; and hence arises that majesty in point of composition, that depth of tone and colour, and that sublime breadth of effect, which characterise the best Pictures of Wilson. In his journey to Italy, his Pictures excited the genuine admiration of the French artist, Vernet, who was at that time much in fashion at Rome: and this first made the English People sensible of the merits of one whom, perhaps, they overlooked, as being their Countryman. It was on the Italian soil alone that Wilson found scenery congenial to his taste, and having so found it, he soon discovered the way to perfect himself as an artist. The collection of his sketches, in the possession of the Earl of Dartmouth, and of Mr. Bowles, of North Aston, display certainly some of the finest samples of Classical elegance in Landscape, that ever were produced by any artist of this Country. Fortunately, however, we need not have recourse to private portfolios to enable us to scan his merits; many of his best pictures have been immortalized by the engravings of Woollet, and other samples of his noble genius are preserved in our National Gallery, by the generosity of his munificent friend and scholar, the late Sir George Beaumont.

Gainsborough. *Gainsborough* excelled both as a Portrait Painter and as a Painter of Landscape: there are few better native Pictures than that of the *Misses Linley*, painted by this master at Knoll. But it is by his skill in the other line, that his great and deserved reputation was chiefly acquired. His works have, indeed, a peculiar charm in our eyes; because their beauties are purely of home growth, unadorned by Classical ideas of form, and stripped of all those pleasing but false associations, which so often attract our gaze in the compositions of other Painters; he pleases, because he presents us with the true features of our own verdant Landscape; he shows the swelling forms of our hills and dales, and exhibits faithfully and accurately the rusticity of our island habits; but to all these he has lent their own peculiar beauty and touch. He has given them that interest which truth of character never fails to impart, and by his possession of skill as an artist, he has blended them into one rich and harmonious whole. It was, indeed, remarkable how much Gainsborough rose in general estimation during the exhibition of the works of British Artists, some few years ago, at the Gallery in Pall Mall, and that, too, even in opposition to the more learned style, and to the acknowledged talent of Wilson. But the truth was, that the touches of his pencil came home to every man's own bosom, and we felt that we had, in every sense of the word, a British Painter. English School.

Of other artists in this line we may mention *Wright*, of Derby, as one of very high power and attainments; his moonlight and firelight effect are inimitable in their way; though his Pictures are not much known, for they are not often to be met with except in the country-seats of gentlemen in his own part of the country. *Webber*, too, demands our notice; the artist who accompanied Captain Cook on his third voyage to the South Seas, and who has depicted the features of the Austral islands and their inhabitants with admirable fidelity. He died in 1793. *Mortimer*, of whom it is no small praise to say that he was a successful imitator of Salvator Rosa, is also an artist of whom his countrymen may be proud; his pictures are ill coloured and heavy, but his design, such as is seen in the common engravings, is full of energy and vigour of soul. Wright. Webber. Mortimer.

Francis Wheatley may be considered as one of our most respectable artists, both in the department of Landscape and Portrait. We cannot close without allusion to the name of *George Morland*, one who, in even the low and groveling line which he pursued, yet showed, by his manner of treating his subject, that abundance of picturesque beauty may be found, by a sagacious eye, in every object, however unpromising it be commonly considered. His character, that is, his character in a moral sense, is said to have been spoiled, and his education stinted, through the avariciousness of his father; and so far he deserves our pity, not blame: his mind felt its own unfitness for that rank in society to which his talents entitled him, and which his friends and admirers gladly invited him to assume; from this he was driven to low and profligate habits, and ultimately conducted to scenes of dishonesty, in which there seems to be some suspicion that he was but too deeply implicated. Under such circumstances, (for no man betrays his moral character more than a Painter,) it must be supposed some pieces betray the idleness and carelessness of his habits; nevertheless, a well-finished Picture of Morland, and such many of his earlier works may be called, is a jewel in the cabinet of the connoisseur. He died in 1804. Wheatley. Morland.

Hamilton is as well known, or perhaps better known, by his works at Rome, than in England or his native country; they are chiefly Historical compositions, filled with tall elegant figures, employed in the gentlemanly-heroic style. He died in 1801. Hamilton

Historical Painting, however, is the great walk of Art, and there are few, in modern days, who may be considered as having attained even a commendable degree of

Painting. advancement in their endeavours to abide this much neglected, but universally acknowledged, test of genius and of highest intellectual merit. If we except some ephemeral productions of the Panorama, exhibiting, not unfrequently, considerable power, and inducing us to regret the short period of existence that has been allotted them; the only efforts which we may consider as having been made on any large scale,—the only *opere di machina*—are the Pictures of Barry, for the Society of Barry. Arts in the Adelphi. If, in point of colour, they neither equal the richness of the Middle Age of Italy, nor the severity of the earlier Italian Schools, they exhibit a grace of form, and, in some instances, a degree of energy, not unworthy the followers of Raffaelle. They well deserve the public attention. The works of Barry's pencil, like the eloquence of his great Countryman and early patron Edmund Burke, betoken splendid ability and no ordinary daring; and he seems to have been incited to most patriotic enthusiasm by a taunting assertion of his contemporary Winckelmann, that "the English are incapable of any great excellence in Art, from their natural deficiency of genius, and the unfavourable temperature of their climate."*

After an absence of four years in Italy, spent in the usual course of Academic study, Barry must have hailed at his return to England, in 1770, the establishment of the Royal Academy, founded in the preceding year. His labours, both as an author† and a Painter, were incessantly directed towards the refutation of Winckelmann's severe aspersion. He advised a similar plan to that adopted of late years in the Academy, of employing the students, in addition to a course of drawing and study from the antique and from the life, to make copies under the eye of their Professor from Paintings of established merit. By this practice, they not only acquaint themselves with the *matériel*, or vehicle of their Art, but they also form a profitable acquaintance with the faults as well as excellencies of those masters, whose authority, indiscriminately followed, might mislead; and whose fascination of colouring might otherwise, not unfrequently, ensnare the youthful artist into palliation, or even imitation of glaring errors.

It was to be lamented, for his own sake, that the violence of Barry's temper hurried him into those contentions with his co-academicians, which impeded his projects, ruined his fortune, and seem, towards the close of life, to have impaired his reason. And yet, for the sake of his professional fame, perhaps his liability to excitement is to be considered fortunate. Had his personal character been less ardent, his pencil might have been less happy.

West. It has been doubted whether West, who, in 1791, succeeded Sir Joshua Reynolds in the Presidency of the above-named Royal foundation, should be numbered among the English School. He was a native of Pensylvania. But he was one of the first members and founders of the Academy in England, over which he afterwards presided. Placed over English artists, he must be looked upon as having influenced, in proportion to the general respect for his undoubted talents, the progress of the Art of Painting in this Country. His was a learned style, formed, like that of Reynolds, Wilson, Barry, and Fuseli, after consummate study abroad of the sublime fathers in Art. His smaller and earlier Pictures are superior to his later and larger productions, in which his forms, though not deficient in simplicity or in correctness, generally want intellectual elevation. Opie, still less refined, is more vigorous. Opie. Opie, in design, betrayed the disadvantage of having wanted Academic initiation; but his pencil, true to individual Nature, was bold and unaffectedly impressive, and his colour excellent.

English School.

Of Fuseli we may observe, that he united much of Fuseli. sound classical learning, with much also of eccentricity and love of mysticism. He was born at Zurich about the year 1739. The lavish praise of Reynolds on some of this artist's early drawings, turned him from his intention of entering Holy Orders. He was the fellow-student and friend of Lavater, a translator and correspondent of Winckelmann, and himself an author of *Reflections*, which appeared in 1765, *on the Painting and Sculpture of the Greeks*. His Lectures as Professor in the Royal Academy excited general attention, and, like those of Barry, Opie, and others, his predecessors in the Professorial chair, have been published. Towards Barry he entertained a mortal and, perhaps, national antipathy, which in his edition (1810) of Pilkington's *Dictionary of Painters* has betrayed him into most uncandid bitterness. Fuseli, however, was behind none of his contemporaries in zeal for the promotion of his Art. He continued to paint till within a week of his death, in April, 1825. He is generally believed to have suggested to Alderman Boydell the idea of a Gallery to illustrate scenes from Shakspeare.* To this collection he contributed eight of his best Pictures; and afterwards being advanced, in 1790, to the rank of Academician, he painted a series of forty-seven subjects from Milton, exhibited under the title of the Milton Gallery.

The mind of Fuseli was replete with critical sagacity and inexhaustible invention, but he possessed also (and of this no man was more unconscious) a hand unequal to the difficulty of embodying his own conceptions. His characters are almost every where excessive. They are in perpetual torture. They never know repose. The instructions of Hamlet to a Player, that "in the very torrent, tempest, and whirlwind of passion, he must acquire a temperance that may give it smoothness," are no less importantly applicable by every Painter, and most especially by any worshipper, as Fuseli devotedly was, at the shrine of Michael Angelo.

The public taste, however, in England has never yet been so alive to the claims of Historical Painting, as to make it an object of universal interest and permanent favour; or a source of effectual and persevering emulation among artists in this Country. Notwithstanding the alleged bluntness and inaccessibility to flattery which have been said to stamp our national character, there is a refined species of adulation in the Art of portraiture which has been found irresistible; which has called forth and secured the almost exclusive patronage of the titled and the wealthy; and which, consequently, in this department of Painting, has raised the English School far above every other in modern Europe. For we may with

---

* *Histoire de l'Art chez les Anciens. Par* Winckelmann. *Traduite de l'Allemand*, 4to. 3 vols. à Paris, 1790—1803. See p. 73 of the 1st Vol. at the end of Chap. iii. of Book i. where the author repeats the theory of Montesquieu (*Esprit des Loix*, lib. xiv. ch. ii. and xii. and lib. xix. ch. xxvii.) and of Du Bos. (*Réflexions Critiques sur la Poësie et sur la Peinture*, 2de Partie, ch. xiii. and xiv.)

† *Inquiry into the Real and Imaginary Obstacles to the Acquisition of the Arts in England.* By James Barry, R. A., 8vo. Lond. 1775.

* *Annual Biography for* 1826.

Painting. strictest justice pronounce of our native Painters, that they have attained excellence in those provinces of their Art which have received of their Country adequate encouragement. In depicting scenes of familiar life and such appearances of Nature as are associated with our home-thoughts and domestic endearments; or in landscape, and especially in such Pictures as recall to memory the sports and habits and occupations of British islanders, we unquestionably equal, if we do not surpass, our neighbours. The fault of deserting the lofty and the heroic for the pastoral and the homely, lies not with British artists but with British patrons. A succession of remarkable men, from Romney, who died in 1802, to Lawrence, whose death, in 1830, has deprived his Country of talents not soon to be replaced, have left us examples of genius aspiring secretly to historic eminence, but devoting the best years of life to the service of the public in Portrait-painting.

Romney. "Romney," says Fuseli, in his caustic manner, "quitted "the unprofitable visions of Michael Angelo and Shakspeare for the more substantial allurements of portrait. He divided the tributes of fashion with Gainsborough and Reynolds. History, if not absolutely abandoned, was reserved for that distant moment when satiety of gain should yield to a pure desire of glory—a moment which never came."

Blake. Blake, whose most eccentric, yet most harmless, life, has been well drawn by Mr. Cunningham, in his *Lives of the British Painters*, was an example of the indiscretion of attempting to lead the public taste by efforts unintelligible to the public eye. But Blake's originalities were near allied to madness, and probably often not intelligible to himself.

Copley. Copley, a native of America, admitted member of the Academy in 1786, and well known by the popular engraving of his "Death of Chatham;" Hoppner, R. A. in 1794; and Owen, R. A. in 1814, must be added to the number who, to talents in Portrait-painting, have united (and Owen more especially) higher merit, requiring only to be fostered and matured by public favour.

Hoppner.

Owen.

Sir Thomas Lawrence. In Portrait, however, the palm of modern victory has been won, and ably won, by Lawrence. With respect to colouring, he may have been exceeded. But few of any School have surpassed the graceful ease of his forms, joined to general fidelity of likeness; his combination of polished exterior with intellectual character; his judicious backgrounds; and his consummate arrangement of light and shade. His was indeed a courtier-pencil, and could elevate at will features almost "innocent of meaning." In his "Satan arousing the fallen Angels," he has left a solitary proof that he shared at one time with Fuseli a draught of inspiration from the fountains of Miltonic Poesy; and he was certainly ambitious of the higher Historical honours of his profession. He possessed a charm of natural eloquence which will long be remembered by all who witnessed it, and which enabled him, from his chair as President, to enforce with admirable clearness and effect, the course of study best adapted to advance the Art. We must not neglect to add, that while few were more accessible or more persuasive in words, none could be, in deeds, more actively munificent towards the cultivation and reward of real merit. Sir Thomas Lawrence was born in 1769, the same year with Owen, and was admitted R. A. in 1794.

Harlow. His pupil Harlow, who died in 1819, at the premature age of thirty-two, was likely, had he lived and been reclaimed from discreditable habits, to have risen into similar estimation. The clever picture "the Trial of Queen Katharine," by this artist, is well known. His facility of hand was extraordinary. While at Rome, during the year before his death, he excited the admiration of the whole city, by completing, in eighteen days, a valuable copy of the "Transfiguration" of Raffaele, of the same size with the original.

English School.

Another name which belongs to the list of eminent British Painters in Portrait, is that of Raeburn, R. A. in 1821. He was an example, as well as a patron, of the Art among his countrymen of Scotland; presided in an Academy of Painting at Edinburgh; and was knighted on the occasion of the visit of George IV. to that city. He died in 1823.

Sir Henry Raeburn.

The fame on the Continent of our artists in Portrait-painting has been in no instance more conspicuous than in that of Dawe, an artist of some talent, (R. A. in 1814,) who migrated to Russia, and is reported to have realized £100,000. He died in 1829, shortly after his return to England.*

Dawe.

Edward Bird was admitted an Academician two years after the last-mentioned artist, and died in 1819. He was self-instructed, and had been singularly happy in painting ballad subjects and popular scenes of common life. But he aspired, too late, to a more elaborate style of Art for which neither education nor experience had qualified him, and his last attempts were failures.

Bird.

It would be invidious to select from works of living Painters further evidence to prove our artists in no respect inferior to such of our rival neighbours as adopt the same walks of Art. We shall, therefore, conclude these brief memoirs with one further example of departed merit, and shall only recall to our readers the memory of a rising artist, Bonington, not long deceased, whose early celebrity, both abroad and in his native Country, held forth the promise of a distinguished career.

Bonington.

That the English School, however, has done its utmost, we are very slow to believe. Progressive efforts, both by artists themselves and by individuals of rank and influence, have now for eighty years been making for the advancement of public taste; the only safe foundation on which any hope of success in Art can ever be raised. Some ground has been gained. A taste for good portraits is not bad taste. We have mentioned the institution of the Society of Arts. It was founded in 1750. Next arose, in 1769, the Royal Academy. In 1805, a Society, at the suggestion of a liberal baronet, Sir Thomas Barnard, was incorporated for the encouragement and improvement of British artists, which continues to flourish under the title of the British Institution. Other Societies, for like purposes, both in the metropolis and in the principal towns of the united Empire, might be here enumerated. Galleries have been opened. Bourgeois, R. A. in 1792, Painter to the then King of Poland, who conferred on him the honour of knighthood, left, at his death in 1811, a very fine collection, which forms the well-known public Gallery at Dulwich College. At Cambridge, the Fitzwilliam Gallery, subsequently founded, bids fair to introduce an acquaintance with this pure source of intellectual refinement into our seats of learning. And at length

Sir Francis Bourgeois.

* "His remains were interred in St. Paul's Cathedral, attended by a large *cortège* of artists and literary men, the Russian Ambassador and Sir Thomas Lawrence (the latter of whom was so soon after to be borne to the same spot) acting as pall-bearers." *Obituary. Gent. Mag. for Feb.* 1830.

Painting. our Legislature, by the purchase of the Elgin marbles, followed by the establishment, in May, 1824, of a National Gallery of Pictures, has gradually drawn the public eye to critical examination of some of the sublimest works of Art, familiar hitherto to few, and to the million utterly unknown. Opportunity, also, is thus presented to all future benefactors, who, like the late Sir George Beaumont, are honourably ambitious to bequeath their works and collections to their Country. When these and other various means and instruments of forming and improving public taste in England shall have had due leisure for operation, we expect with confidence far nobler and far higher labours of native genius; and, to use the words of the Committee of the British Institution, 1805, "we feel no apprehension but that the spirit of the British artist will be awakened and invigorated, whenever a free and fair scope shall be given to his talents; whenever he shall be stimulated by the same patronage as that which raised and rewarded the Italian and Grecian masters." Of Outline.

THEORY AND RULES OF THE ART.

Some information both as regards Theory and Practice, in the Art of Painting, may be looked for, annexed to the foregoing Historical account. This expectation, as far as is consistent with our limits, must be answered: while we, at the same time, remind the reader, that the efforts of the Encyclopædist cannot fairly be presumed to afford means of complete proficiency, but rather to point out, on subjects of this kind, such authorities as may be consulted and followed with advantage to the student. Indeed, this Art, and that of Music, as well as many others, are to be taught perfectly only by a living teacher, who disciplines the eye, the hand, or the ear by repeated trials; and with his pencil, or upon his instrument, exemplifies every precept as he proceeds. Elementary reading, without actual practice, is either altogether unintelligible, or is always likely to mislead. No Treatise upon Swimming, or upon Horsemanship, was ever yet of itself sufficient to make even an indifferent rider or swimmer: nor would any pilot, in his senses, intrust his helm to the mere theorist (however skilful theoretically) in Navigation. To instructors in the Art of Painting, the same observation peculiarly applies. With this understanding, therefore, that we are not expected to do more than may be generally useful, and that what we do, is chiefly in the way of reference to Works which treat at large upon the subject, we shall first introduce some rules and comments on the Art of Painting, under the several heads of *Outline*, *Composition*, *Chiaro-scuro*, *Colouring*, and *Style*. Secondly, we shall proceed to mention, in chronological order, such authors and their writings as afford upon this subject the most valuable information.

Of Outline.

(1.) The first step to be firmly attained in the course of study by every artist, and without which, firmly attained, no step afterwards can be attempted with credit or safety, is *correct outline*. An Art which appeals to the eye for the truth of its performances must depend primarily for success on its adherence to the form of any objects imitated, whether of the animal creation, or inanimate, or belonging to the vegetable kingdom. For this purpose, such an acquaintance, both with Natural history and with works of human invention, must be instituted and pursued, as will lead to clear and vivid ideas of the shapes and appearances of bodies, and enable the student to draw from memory, as well as from immediate observation.

(2.) This familiarity with the visible surface of things, although it should penetrate no deeper, and should abstain from all philosophic concern about their uses and properties, yet amounts evidently to no inconsiderable share of knowledge. The landscape Painter, for example, whose correctness of outline can satisfy, or, whose degree of proficiency, at least, will not provoke the censure of Botanical criticism, must possess a multitude of facts and of ideas in common with the Botanist. The correct designer of public or private works and buildings cannot avoid Architecture and Mechanics. The Painter of animals must be experienced in Natural History. The marine Painter can make no pretences to faithful delineation without intimate acquaintance with the structure, use, and management of shipping. And, above all, the Painter of History and of the human subject, must unite anatomical precision to many other various acquirements of the highest intellectual order. We may further observe, that if this talent of the draughtsman admits him into connection with almost the whole circle of the Sciences, it is also to almost every Science an indispensable auxiliary. If it derives advantage from literary and scientific sources, it often repays, with interest, the obligation; since, but for the skill and fidelity of its professors, the most important discoveries would often fail of being generally comprehended, or even known. After premising thus much on the necessity and importance of accurate delineation, we proceed to the practical requisites introductory to its attainment. The practice of correct outline may be comprehended in two words,—Perspective and Anatomy.*

(3.) Perspective may be defined, the art of representing objects on a given surface, in the same forms and relative proportions which they present in Nature to the eye, according to their respective distances from the beholder, looking from a given point, called the *point of view*. Definition of perspective. Point of view.

(4.) Aerial Perspective represents the several gradations, depths, and breadths of light, colour, or shadow, Aerial perspective.

* *Il giovane debbe prima imparare prospettiva: poi le misure d'ogni cosa; poi di mano in mano imparare da buon maestro, per assuefarsi a buone membra.* Lion. da Vinci, *Trattato della Pittura tratto da un Codice della Bib. Vat. da Gul. Manzi* 4to. Roma, 1817, p. 50.

Painting.

caused by the intervening atmosphere in objects more or less remote. Aerial perspective, therefore, relates to *Chiaro-scuro*, a further branch of the subject of Painting, which will be noticed in its proper place.

Linear perspective.

(5.) Linear perspective (which belongs especially to the branch of Art now under consideration) delineates the *outlines* only, or boundaries of objects, and represents them in the same form and relative magnitude which they exhibit in Nature, according to their respective distances, and the position of the spectator's eye.

(6.) The surface on which this delineation is made, may be plane, concave, convex, cylindrical, (as in the case of Panorama painting,) conical, or, indeed, of any given shape: but the few practical rules which our limits admit will be confined to the Art of representing objects *on a plane surface* that makes *right angles with a straight line drawn from the spectator's eye.* This plane is of indefinite extent; is supposed to intercept the rays in their passage to the eye from all objects to be represented; and is called the Perspective Plane, or *plane of the picture.* In illustration of it, let a piece of plate glass be imagined extending every way to any imaginable height, depth,* and breadth. Nothing is more manifest, than that if the rays proceeding from any object through that transparent medium, could, in their passage to the eye, be made to leave impressions on the glass at their respective points of contact, the result would be, on the transparent plane, a faithful picture of the object to be represented.

Perspective plane.

(7.) It is also equally evident, that only a certain circular portion of the plane in question is visible, the portion, namely, which contains the picture. But the remainder of the plane, or invisible portion of it beyond the circumference of the circle of vision, contains other most essential points, from which the tactician in perspective is to calculate his outlines, as well as from points in the visible surface. It is for this reason that the perspective plane must be supposed of indefinite extent.

(8.) If it be asked how the spectator can thus determine points on an invisible surface? The answer is, by removing his eye at any time from the given point of view to some other at a greater, or more convenient distance from the plane. This change of position enables him to command any portion of the surface necessary to his operations. But it is from the given point of view only that his picture is intended for inspection. The points and lines used for calculating any form in true perspective on his picture, are, like the joints and wires of a puppet-show, absolutely requisite indeed for the performance, but not designed for any eye except that of the performer. They are only temporary materials, only a scaffolding, to be removed immediately when the work they are to do is over.

(9.) Here another property of the perspective plane will have occurred to the reader, *viz.* that *the circle* upon it, comprehending all visible objects, *increases or lessens with the perpendicular distance of his eye from the plane.*

Principal distance.

(10.) It is this distance which is *principally* necessary towards determining the size of the picture, and the relative proportions to each other of objects delineated thereon. This line is, therefore, called the *principal distance.* One extremity of it is, as we have already said, the point of sight, or point of view, determined by the place of the spectator's eye. (Art. 3.) Its other extremity is its point of perpendicular contact with the perspective plane, and is called the *centre of the picture,* or the *principal point.*

Of Outline.

Principal point.

(11.) A line drawn through this latter point, level with the horizon, determines the height of the eye in a picture, and is called the *horizontal line.* A circle, having this point for its centre, and the principal distance for its radius, will be the circle already noticed. It will be found to comprehend upon the perspective plane, the whole field of vision,—that is, will include all the objects which the eye, at that principal distance, and from the corresponding point of view, is able to take in. For from any fixed point of sight, the utmost limits of the prospect are determined by two lines, forming a right angle at that fixed point of sight.

Horizontal line.

(12.) The prospect, accordingly, of a spectator, looking (as is supposed the case in most pictures) in a horizontal direction, embraces at every view *a fourth part of the horizon, viz.* 90 degrees, and the visible portion of the perspective plane is in all cases the base of a cone, the apex of which is the spectator's eye, or point of sight; (Art. 3;) its altitude the principal distance, (Art. 10,) and the diameter of its base equal to twice its altitude, so as to make the angle at its apex a right angle. A familiar illustration of this may be constructed by means of a card, shaped similarly to the right-angled triangle D R E, (pl. i. fig. 1,) and having a piece of wire affixed to it in the direction R W, so as to divide the angle D R E into two equal parts, (*viz.* 45 degrees each.) Next let the projecting portion C W of the wire be thrust through the centre of a circle drawn on a separate card, or any other flat surface, to represent the perspective plane, and let the radius of the circle be equal to C R, C E, or C D, in the triangular card. If the card be then made to revolve on the wire R W, with its edge D E applied close to the surface as above, and with C R perpendicular to it, the points D and E will be observed to move in the circle D R E W, and the lines R D and R E will, by the revolution of the card, form the right cone above described.

One fourth part of the horizon seen by the spectator looking horizontally

Plate i. Fig. 1.

(13.) Here let the learner observe, that there is no necessity for every sketch or Painting to contain the whole area of the circle of vision on the perspective plane. Let, for example, the circle D R E W (pl. i. fig. 1) be the circle or base of the right cone above described, D C its radius, being equal to the principal distance, H L the horizontal line, and C being the centre of the picture. It is at the painter's option to cut out any part of that circle from the rest, provided the principal point C, or centre of the picture, be found somewhere on his canvass. Thus, the rectangles, *g t k i*, *a b f d*, and *m n o p*, may each of them comprise a sufficient number of objects proper for the composition of a picture.

Size of the picture.

(14.) It is recommended, however, to every artist who would avoid the charge of affected singularity, particularly in architectural subjects, to keep the edges of his work quite clear of the circumference of the circle D R E W; otherwise the lines of his foreground, although perfectly correct in their original design, will appear distorted when viewed at any other principal distance than the altitude of the visual cone C R, equal to D C or C E.

Architectural subjects.

(15.) Still more improbable would appear any attempt whatever at delineation beyond the circle D R E W,

* By the terms height and depth, is meant the extension of the plane above and below the level of the spectator, as by breadth is meant its extension towards his right and left.

Painting.

since all beyond that boundary must be invisible to a spectator at its proper point of sight, the apex, *viz.* of the cone above described. Indeed, so essential is it to the purposes of distinct and correct outline for the artist to confine himself considerably within the extreme circle of vision, (exemplified by the circle D R E W as above,) that a much smaller circle and a much smaller cone, of which the apex is an angle of 60 degrees, has been generally adopted. To illustrate this, let the angle D R E (fig. 1) of the card above constructed be reduced to an angle of 60 degrees, *viz.* to the angle Q R S divided as D R E was, into two equal parts; and made to revolve, as in the former instance, on the axis C R representing the principal distance, and held also, as before, perpendicular to the surface used to signify the plane of the picture. The points Q and S will be found to move exactly in the circle Q *g f* S, and the sides R Q and R S of the equilateral triangle Q R S will form a cone, of which the angle at the apex will be an angle of 60 degrees. Its base will be the circle Q *g f* S, and its axis the principal distance C R as before. This inner circle Q *g f* S may be not improperly called the circle of *distinct* vision. For although it would be untrue to say, that the eye at R cannot take in objects beyond this inner circle, or even to the verge of D R E W, yet such objects are seen at best but imperfectly, and they become fainter and less decided in proportion to the extension of the base of the cone above described, until they are utterly lost in the circumference of the outer circle. These particulars cannot, perhaps, by beginners, be acknowledged without some hesitation; a circumstance not surprising when we consider the involuntary and imperceptible quickness with which any change in the position of the eye is naturally made in order to command a better view of any object. In the ordinary uses of the eyesight, scarcely, for any person, does the field of view remain the same for two moments together. Whereas the laws of perspective suppose the eye, during the process of delineation, to continue fixed immovably at one point of sight, (Art. 3, 10,) without any the slightest variation, either of its distance from the perspective plane or of its field of view. According, then, to experience in the application of perspective, *a sixth part of the horizon* (*i.* e. an arc of which the chord is equal to the principal distance) will be found the utmost that can safely be attempted in one picture. In drawing from Nature, as in the case of landscape scenery, let the learner consider himself *stationed* at one angle of an equilateral triangle, as at the angle R of Q R S, with C R for his principal distance, and Q S for the limits of his drawing. He will thus take in no more at one view than would be contained between two poles fastened perpendicularly in the ground, say, for example, three feet and a half apart, and each of them also three feet and a half distant from the spot or *station* where he is placed. In the several examples, however, which follow, we shall not find it convenient to adhere strictly to the rule just given, and shall often refer to figures drawn indiscriminately within the circle of vision, in order to obtain as much compass for practical illustration as possible.

The picture to take in a sixth part of the horizon.

Having so far defined the perspective plane, and settled the limits of vision, within which the representation or outline must be drawn, we have next to consider the original forms of which the outline is to be a copy, and from which innumerable rays are conceived to pass through the plane of the picture to the spectator's eye.

(16.) *An original plane is a plane containing any original point or line, to be copied or represented on the plane of the picture.* In what follows it will be necessary to distinguish all original planes into three classes: 1st, planes *parallel* to the picture; 2dly, planes *perpendicular* to the picture; and 3dly, planes *neither parallel nor perpendicular*, that is, inclined to the picture at less than right angles. To every original straight line, not parallel to the picture, belongs a point in the perspective plane, called its vanishing point; and to every original plane, not parallel to the picture, belong two peculiar lines, called its vanishing and its base line. (Art. 19, 20, 60, and 62.)

Of Outline.

An original plane.

(17.) Two original planes require especial attention; the *horizontal plane* and the *station plane*. The latter has by some been called the vertical plane, from its passing through the zenith, but as it also passes through the centre of the picture, (a point always depending on the station of the spectator,) it is better known by the term station plane. The relative situation of the horizontal and station planes may be thus familiarly explained.

Of original planes the horizontal and the station plane to be especially considered.

Suppose the spectator *stationed* at the side of a room, and looking on a wall directly opposite him, towards a number of book-shelves, one of which is exactly level with his eye.* This shelf belongs to the horizontal plane, and any number of other shelves, above and below it, are portions of its parallels. Suppose, further, these planes, or shelves, to be supported by other planes perpendicular to the horizon, or floor of the room, and let one of the supporting planes be directly opposite the spectator's eye. It will be a portion of the *station plane*, and any number of similar supports to the right and left of it, are parts of as many planes, its parallels. Every book placed in its proper, or upright position, and indeed every leaf in every book so placed, will be in a separate parallel to the station plane. In like manner, if any of the volumes are laid flat on the shelf, these, and every leaf in each, will belong to planes parallel to the horizon. So, also, if any volume lie ever so little out of its erect position, and with a leaning to the right or left, this volume will be in a separate plane, inclined to the horizontal and station planes at some angle, which it is the business of perspective to ascertain. And it is easily conceivable how any book may be placed half open in such a position, as that its cover and its leaves shall form every possible angle with each other, or with any of the planes mentioned.

Horizontal plane

Station plane.

(18.) When both these planes (the horizontal and station plane) and their innumerable parallels added to the multitude of others, at which, in the foregoing popular illustration, we have briefly and imperfectly hinted, are invested by the mind of the spectator with the property of expanding themselves over infinite space, he will readily apprehend that in any original object there is no point or line whatever, which does not belong to one or other of these planes, or to their parallels.

(19.) He will also understand that extending *from*

Vanishing line.

* The horizon, in Astronomy, is described to be "formed by a plane touching the surface of the earth where the spectator stands, and infinitely extended towards the heavens." (Keill's *Astronomy, Lect.* 1.) To this plane the term in perspective is usually given of ground plane. (Art. 41.) The horizontal plane, properly so called, is another plane parallel to it, and passing through the spectator's eye. Both planes, being parallel to each other, vanish, of course, in the same vanishing line, namely, the line of the horizon. (Art. 19, 61.)

288090

Painting.

his eye to infinite distance, every plane not parallel to the picture will appear to *vanish* in a straight line, (Art. 61,) called its *vanishing line.*

Base line.

(20.) On the other hand, each plane in its direction *towards* him will be intersected by the plane of the picture in a line called its *base line.* (Art. 62.)

(21.) The impossibility is evident of delineating any object nearer than this base line, for which, however, a parallel is most frequently substituted. Other lines between the spectator's eye and the picture also require substitutes, as,

Line substituted for the principal distance.

(22.) I. The principal distance, which, as already defined, (see Art. 10,) must be perpendicular to all vanishing lines *passing through the principal point*, and which, as we have seen, (Art. 10, 11,) is always equal to the radius of the circle of vision. That radius is, therefore, the constant substitute for the principal distance.

Direct distance.

(23.) II. The direct distance, a perpendicular from the eye of the spectator to any vanishing line *not passing through the principal point*, and which meets that vanishing line in a point called its centre. Before we can find a constant substitute on the plane of the picture for this line of direct distance, a line must be determined, which is always to be found *on* the picture, called the central distance, being the distance between the principal point, or centre of the picture, and any other centre of a vanishing line.

Central distance being always on the plane of the picture requires no substitute.

(24.) The central distance is a perpendicular drawn from the principal point to any vanishing line. Being always found on the plane of the picture it requires no substitute.

Line substituted for the direct distance.

(25.) A right angle being made by the central distance with any radius of the circle of vision, these will be two sides of a right-angled triangle, of which the hypothenuse will always equal the direct distance. This hypothenuse, therefore, is the constant substitute for the direct distance.

Plate I. Fig. 2.

Thus any one of these three lines, the *principal*, the *direct* or the *central* distance, is sufficiently ascertainable on the plane of the picture. To illustrate the foregoing statement, let the learner describe a circle, D A X B E Z Y, which is to be supposed equal to the circle of vision. Its radius C A, on this supposition, is equal to the principal distance. Let him next draw two lines, as R S, S T, (fig. 3,) on a piece of card, meeting each other in a right angle at S, and from one of the lines let S P be cut off equal to the radius A C, (fig. 2,) or the principal distance. From the other line, *viz.* S R, let any given central distance be cut off, as S V, and the triangle S V P being cut out from the card, let it be placed perpendicularly on the circle, (fig. 2,) so as that the point S shall coincide with the point C, the side S V lie in the direction of any radius of the circle, and the side S P represent a perpendicular from the eye.

Fig. 3. The above substitution explained by a mechanical contrivance.

(26.) If the triangular card be then made to revolve on the point S, the line S V, used as a radius, will form the inner circle O I K. It is important to observe, that every point in the circumference of this circle, O I K, may be the centre of a vanishing line, to which line, as to a tangent, the perpendicular from C (*viz.* the *central distance*) may be drawn. In other words, the circumference O I K is composed of all the centres of any vanishing lines that can be drawn as tangents to it. Such as, for one example, the tangent or vanishing line B E, of which the centre is O. In this example C O is the central distance of the vanishing line or tangent B E; of which the direct distance will be equal to a straight line, drawn from its centre O to the point X, or Y, in the circumference of the circle of vision, the line X Y, being previously drawn through C, parallel to B E, or, what amounts to the same thing, drawn perpendicular to C O, just as S P, on the card, was made perpendicular to S V.

Of Outline.

Thus, having the substitute C X for the principal distance (fig. 2) drawn parallel to the vanishing line B E, we obtain O X, the *substitute for the direct distance*, and the triangle O C X (fig. 2) will be equal in all respects to the triangle V S P, on the card, (fig. 3,) *viz.*

The side C X = principal distance, or P S.
The side C O = central distance, or S V.
The side O X = direct distance, or P V.

In the same manner any other central distance, as S L, may be set off on the line S R, (fig. 3,) and also the new direct distance P L, corresponding to it. The card may then, as before, be transferred to the circle of vision, where the point L revolving round the point S, on the card, will make the small circle M W; and L, transferred to some point, as M, in its circumference, will touch the centre of some vanishing line, or tangent, suppose D Z. To this vanishing line draw the parallel A E, through C; and then a straight line from the point A or from E to M (the centre of the vanishing line D Z) will give A M or E M, the substitute for the direct distance, P L.

(27.) An important general principle may be here premised; and in what follows, will apply universally to the representation of angular objects, (which is, in fact, the chief business of perspective,) *viz.* that any angle may be represented by determining the vanishing points of the lines which form it. Thus the centre of any vanishing line being known or determined by the methods already stated, (Art. 24, 25, 26,) let a perpendicular be raised at that centre.

Representation of an angle.

The length of this perpendicular depends upon whether the vanishing line does or does not pass through the centre of the picture. In the former instance this perpendicular is equal to the principal distance; in the latter, to the direct distance.

An example for each will explain our meaning.

1st. On a plane of which the vanishing line passes through the centre of the picture.

(28.) Let any two lines, A L, and L B, (plate i. fig. 4, No. 1.) making an angle at L, be produced to their vanishing points A and B, which in this instance are supposed to be in the vanishing line A B, passing through the centre C of the picture. Let C E, a perpendicular equal to the principal distance, be raised at C, the principal point; and an angle formed at E by two lines A E, B E, drawn from the two vanishing points. The angle A L B (with any other angle made by two lines vanishing at A and B) will always represent the angle A E B. Also, if the angle A E B be divided as in the figure by any lines, as E C, E K meeting the vanishing line, the divisions of A E B will be represented by proportionally corresponding divisions of A L B. Thus A L C represents A E C; C L K represents C E K; and K L B represents K E B.

2dly. On a plane of which the vanishing line does not pass through the centre of the picture.

(29.) Secondly, for an example in which the vanishing line does *not* pass through the centre of the picture, suppose the two lines already given as forming the representative angle at L, to have their vanishing points at F and G, in the vanishing line F G. Find the centre D, of F G, (Art. 24,) and the direct distance D R. (Art 25.) At D, the centre of the vanishing line

F G, raise the perpendicular D H, equal to D R, the direct distance. Here, as in the last example, lines drawn from the two vanishing points to the furthest extremity of the perpendicular, will form at H the original angle represented at L. Thus the angle F H G will be represented by F L G. And any number of divisions in this, as in the former instance, may be made of the angle at H, which will be represented by corresponding divisions at L.*

Representation of any proposed angle.

(30.) Hence we may observe, that the vanishing point of any given line, being known, and likewise the vanishing line of the plane to which it belongs, any other line representing any proposed angle with the given line, may be drawn. Thus, if the given line be L F, and its vanishing point be F, and its vanishing line be F G, the representation of any proposed angle may be made either at L, or at any other point in the line L F. Let L be that given point. Having found, by means of the central distance, C D, the centre D, of the given vanishing line; draw at D, the perpendicular D H, equal to D R, the direct distance. Next draw H F, and at H, make with F the proposed angle, say F H G. A line, G L, joining the points G and L, will complete G L F, the representation of the proposed angle.

Vanishing line known by joining any two vanishing points that belong to it.

(31.) Also, if any two vanishing points in any vanishing line are known, the vanishing line is soon found, for it is itself the straight line uniting them. Thus, F and G (fig. 4, No. 1.) being known, F G is the vanishing line of the plane, in which any two lines, vanishing at F and G, contain the angle F H G. Or, again, the points A and B, or A and K, being known; A B is the vanishing line of the plane in which any two lines, vanishing at A and B, or A and K, form the angles A E B, or A E K, represented at L.

That the representation of an angle varies from its original.

(32.) It will be seen from this (fig. 4, No. 1.) and numerous future examples, that the representation of an angle varies, in most cases, from its original, and is almost always larger or smaller than the angle which it represents. This is a constant puzzle to beginners. Thus the representative angle A L B is larger than its original angle at E, and the same angle F L G is much larger than its original at H. To convince any learner of this as popularly and familiarly as we can, let a piece of card be cut into the shape of a triangle of larger and more convenient dimensions than the triangle A E B, but having exactly the same angles at A, E, and B. Next, construct at E (on the card) (fig. 4, No. 2.) the angle C E B; and with C E (taken from the card) as a radius, describe on another card the circle of vision. To the side A B of the triangular card affix a piece of wire, on which it may turn as on an axis. Then applying this axis to the diameter of the circle, and keeping your eye exactly over the point C, turn the triangular card on its side A B by means of the wire, and observe attentively the various *changes* of the angle at E. At first laid flat on the circle, the real angle and the apparent will coincide, and be equal to A E B. But as you turn the card *towards* you, the apparent angle goes on increasing through an infinite series of magnitudes, such as A *r* B, A *s* B, until, after attaining its greatest possible magnitude, it vanishes in the line A B. After this, continue the revolution of the card until the apparent angle again coincides with its original at N, below the line A B. The triangular card, as it now recedes from your eye, will form another series of angles, continually diminishing, as A *t* B, A *u* B, until it equals and coincides with A N B.

Explained by an easy experiment.

The very same appearances will take place if the circle above mentioned be drawn on a piece of glass, to represent the perspective plane; and then the wire A B be applied, and made to revolve on the side of the glass furthest from the spectator. Infinite varieties, as before, of angles between E and N will be now observed through the glass during the revolution of the triangular card on its axis A B, receding from or advancing towards the spectator. These varieties are but so many different *appearances* or *representations* of the original angle seen under so many different aspects.

Also, if another triangle of card, constructed similarly to F G H, be made to revolve on its vanishing line, as F G, and the spectator's eye be kept fixed as before over, or opposite, the principal point C, every change of representation of the angle F H G will be given according to the situation of the plane it belongs to, vanishing in the line F G. But in this latter instance fewer of the gradations can be noticed, as many of them, those between H and L for example, (fig. 4,) will be out of the circle of vision, and consequently invisible to an eye kept exactly at that perpendicular distance from C or principal distance. (Art. 15.)

The same straight line may be common to two or more planes.

(33.) Another preliminary observation, which may give clearness to what follows, is, that the same straight line is not to be considered as confined invariably to the same plane. On the contrary, the number of planes is infinite, to all of which, in common, the same straight line may belong. Thus, the axis o *n*, (plate ii. fig. 2,) or C X, belongs not only to the plane of *i v* C, but to the plane of *k w* C; to the plane of S *z* C; and to the plane of *t m* C; which planes, it is evident, might be multiplied to the extent of any number of radii possible to be drawn to the centre *n*. The same observation is to be made respecting the line *i s*, (plate ii. fig. 1,) which is common to the plane *i* M *s*, and the plane H *v q*. The axis *r u*, in like manner, (plate ii. fig. 3,) is common to all the several planes that appear to revolve upon it. (Art. 86, 87.)

(34.) It will be useful here to recapitulate our definitions by a reference to plate ii. fig. 4, 5, and 6.

The foregoing definitions recapitulated and exemplified.

A D B G. (Fig. 4.) A portion of the perspective plane. (Art. 6.)

C. The centre of the picture or principal point.

O. The point of view. (Art. 10.)

O C. The principal distance, on which, as on an axis, the right-angled triangle F O R, being made to revolve, forms the circle of vision. (Art. 11 to 15.)

C R, or C F. Radii of the circle of vision, and substituted for the principal distance, being equal (Art. 11) to O C, and perpendicular to the vanishing line at its centre C.

V O X. An angle of 60°, which, by the revolution of the triangle X O V on the axis O C, forms the inner circle, or circle of *distinct* vision. (Art. 15.)

M O N P. A portion of the horizontal plane. (Art. 17.)

H C L. Intersection of the horizontal plane, called the horizontal line. (Art. 11.) It is the vanishing line of all planes parallel to the horizontal plane. (See further Art. 65.)

B O U Z K. (Fig. 5.) A portion of the station plane,

* The perpendicular, it is to be noted, will produce the same results by being raised on *either side* of the vanishing lines A B or F G, at their respective centres.

Painting.

of which the intersection I N with the perspective plane is called the station line. (Art. 17.) It is the vanishing line of all planes parallel to the station plane. (Art. 65.)

C T S and C T R. Original planes passing through the centre C, and perpendicular to the plane of the picture, but not parallel to the station plane.

C W. Line of intersection of the plane C T S, and vanishing line of all planes parallel to the plane C T S. (Art. 74.)

C L. Line of intersection of the plane C T R, and vanishing line of all planes parallel to the plane C T R. (Art. 74.)

S R N. (Fig. 6.) A portion of an original plane making with the plane of the picture the angle R S E, (to which C O P is constructed equal,) and having B S for its base line, and V L for its vanishing line, (Art. 19, 20, 64,) and for the vanishing line of all planes parallel to the plane of S R N. (Art. 65.)

P. The centre of the vanishing line V L. (Art. 75.)

P C. The central distance. (Art. 24.)

O C. The principal distance, and C P its substitute. (Art. 22.)

O P. The direct distance, and P D its substitute. (Art. 22, 25, 75.)

We have now generally stated the nature and position of original planes, together with the lines and points on the perspective plane, which are necessary towards correct representation. The rules and observations which follow relate to the application of these materials.

Practical perspective as attainable as practical geometry.

To know the reasons for each rule, the student must consult his Euclid, or any geometric treatise on the subject, but to know the rules themselves may be enough for the merely practical draughtsman. As practical Geometry is all that commonly is requisite for the engineer or surveyor, so practical perspective suffices for the artist. It remains for us to give some leading examples of representation in the several cases to which the Art extends.

All cases for perspective reduced to three.

These cases may be reduced to three. i. *Planes which have no vanishing line.* (Art. 67.) ii. *Planes of which the vanishing line passes through the centre of the picture.* iii. *Planes of which the vanishing line does not pass through the centre of the picture.* But as this division will be expressed more clearly by terms referring to the illustrations we have given, we shall describe the same three cases in other words.

Case I. Of planes parallel to the perspective plane.

Case II. Of planes perpendicular to the perspective plane; which include three varieties:

1st. Planes parallel to the horizontal plane.

2dly. Planes parallel to the station plane.

3dly. Planes neither parallel to the horizontal nor to the station plane.

Case III. Of Planes neither parallel nor perpendicular to the perspective plane; containing also three varieties, *viz.*

1st. Planes whose bases are parallel to the horizontal line.*

2dly. Whose bases are parallel to the station line.†

3dly. Whose bases are neither parallel to the horizontal nor to the station line.

Of Outline.

(35.) To exemplify the several foregoing cases. In plate ii. fig. 2, the diameters *i v*, *k w*, *s z*, *t m*, are in *a plane parallel to the perspective plane*, and consequently belong to Case I. To the same case belong, in plate iii. fig. 1, two sides of each of the four boxes, *viz.* the side in each nearest the spectator, and its parallel, the side most distant. Also two sides similarly circumstanced in the lids of the box *o p r*, and of the same box as seen resting on a different plane, of which the vanishing line is C Q.

The first case.

Of Case II. examples are abundant. The plane P *j e*, plate ii. fig. 3, is *parallel to the horizontal plane*. Also (plate iii. fig. 1) the square bottom of each of the three lower boxes, and of the box in each of the figures. (Plate ii. fig. 1, plate iv. fig. 1, and plate v. fig. 2.) *Parallel to the station plane* we have examples in the sides (plate iii. fig. 1) *d x* and *i g*, *o j* and *s k*, *x y*, &c. of the boxes there introduced. Also, (plate vii. fig. 1) in a picture-frame suspended from the point *s*.

The second case.

Planes neither parallel to the horizontal nor to the station plane, but perpendicular to the picture, are represented in plate ii. fig. 2; also in plate iii. fig. 1, the bottom of the upper box, with the top of its lid, together with those sides of both which are perpendicular to the plane of the picture.

The third case.

Case III. may be thus illustrated. The planes (plate iii. fig. 1) *a b* V and *d h* Z, in the lid of the box *d f*, and the plane *x a* W, in the lid of the box *y a*, form examples of planes the *bases of which are parallel to the horizontal line.*

Again, to exemplify planes of which the *bases* are *parallel to the station line.* The base *g b*, (plate ii. fig. 3,) of the plane P *b g*, is similarly circumstanced. And, lastly, for an example of a plane *neither parallel to the horizontal nor to the station line*, observe the plane of the lid of the box (plate ii. fig. 1) *e u s i*, which vanishes in the line M L. Also, (in plate iv. fig. 1,) a similar lid *k t s e*, vanishing in the line X M.

Likewise (in plate v. fig. 2) the lid *k h i w*, vanishing in the line V M.

CASE I.

Of Planes parallel to the Perspective Plane.

Rules and Observations.

(36.) That if any number of parallel straight lines be all parallel to the plane of the picture, their representations are parallel to each other.

(37.) That the representations of all equal straight lines in a plane parallel to the plane of the picture, are all equal to each other.

(38.) That if an original straight line be parallel to any straight line on the plane of the picture, its representation is also parallel to that line.

(39.) That the representation of a plane figure, parallel to the perspective plane, is a similar figure; that is, its angles are equal to those of the original, and its sides proportional. Thus, if the principal distance be divided into a number of equal parts to stand for yards, feet, or any other measure expressing the distance of the original plane from the spectator, the representation may be given of the sides of the figure according to that scale.

---

* In which examples the plane is perpendicular to the station plane.

† In which examples the plane is perpendicular to the horizontal plane.

Painting.

Problem I.

To prepare the Perspective Plane for Case I.

Prob. I Plate V. Fig. 1.

(40.) Describe any circle A G B D with C for its centre, representing the principal point; and within that circle of vision, let the line E F represent a plumb-line, (or the nearest upright object in the foreground,) divided into any number of equal parts, say seven; each of which suppose, in the original plumb-line, to be one foot; and in the representation of it, as here given, to be one-fifth of an inch.

Draw to the line E F two parallels, G I, H K, at pleasure, (according to the size of the drawing, and the intended extent of the view,) and to these parallels two perpendiculars meeting them at the four points G, H, I, K. Let the sides of the drawing be next divided into equal parts, according to the scale of E F. The sides G I, H K, will represent 18 feet each. The sides G H, I K, 22 feet each. It will be manifest that these four lines, or sides of the drawing, are parallel to the horizontal (Art. 11) and station lines, (Art. 17,) and that a line drawn from any given number, as 7, and passing through the centre of the picture, to the same number on the side opposite, would be the horizontal line. Also a line through C parallel to the plumb-line, would be the station line. (Art. 17, 34.)

The ground line. The ground plane.

(41.) The lower side of every drawing is commonly called the ground line, and the plane of which it is the base, the ground plane. (See note * Art. 17.)

(42.) In sketching from Nature, a substitute for the plumb-line may occasionally be found in the upright edges of a wall or other building, the height of which is known; or in the height of any other object perpendicular to the horizon. Having now fixed at the sides of the picture the proportions of the nearest objects, or, rather, the nearest points of objects that it is possible (Art. 11, 12) to delineate upon it; let the learner next divide the principal distance (or radius B C of the circle of vision) according to the same scale. (Art. 39.) In the present example it will contain sixteen parts. So that according to the perspective plane now prepared, the principal distance (or distance of the spectator from the plane of the original plumb-line) is 16 feet; the height of his eye from the ground plane is 7 feet; and the utmost limits of his prospect along the ground line (*viz.* the side I K) produced both ways to the circumference of the circle at A and D will be about 26 feet. It is recommended to the student to practise this preparation of the perspective plane in various scales, and not confine himself to the one here given, which, in fact, must refer to many objects indistinctly seen. (Art. 15.)

Problem II.

Prob. II.

To draw (parallel to the perspective plane) any surface which shall be similar to any other surface also parallel to the same plane; and which shall represent that surface at an equal, a greater, or less distance from the spectator.

Some previous acquaintance with practical Geometry requisite.

(43.) The student is expected to be familiar with the construction of regular figures, the circle, the triangle, the square, parallelogram, &c. as taught in elementary books of practical Geometry. Raise at any point, as O, in the ground line, a perpendicular; and describe a circle, O P R, the centre of which is in that perpendicular; and the radius of which is equal to any given number of the divisions on the ground plane, say three. It is required to make a representation of this circle in any part of the picture, either at the same distance, or at any other greater distance.

Of Outline.

First part of Prob. II.

(44.) To represent the circle *at the same distance*, nothing more is requisite than, with the same radius, (Art. 37,) to make at any given point a circle of exactly the same apparent area. This done, any regular figure within the circle may be represented, such as the equilateral triangle O P R. If the sides of the original figure are parallel to those within the circle, their representations must be also drawn parallel. (Art. 36 and 38.) This is the well-known case of architectural elevations, which are drawn in conformity to a ground plan previously determined.

Second part of Prob. II.

(45.) Next, to represent the surface O P R at a *greater* distance. Take any radius, as U V, less than that of O P R, and construct a circle at the point given. The circle thus constructed will represent a breadth of six feet (the diameter of O P R) on some plane parallel to the picture at a greater distance from the spectator than the plane of O P R, (*i. e.* greater than 16 feet, the principal distance;) and it is evident that a similar figure to O P R drawn within the circle at U, according to that scale, (of U V,) will represent the figure O P R, at that greater distance.

If it is required, on the ground plane, to find the distance of the last constructed circle; draw the lines O C, T C, cutting off a portion from the ground line equal to the radius of O P R. Between O C and T C lie all the parallels to the ground line that *can be drawn less* than O T. From O T cut off O 5, equal to U V, and draw 5 S parallel to O C. The line N S equal to O 5, or U V, drawn between O C and T C, parallel to I K, will be the radius required; and will show the distance of the plane of U V on the ground plane. In other words, the surface to which U V belongs, and the surface to which N S belongs will be in the same plane parallel to the picture: and the triangle at N will be equal to its similitude at U, and will represent O P R at the distance of the original at the point N on the ground plane. It is moreover evident, that according to this new scale of N S, or U V, the same figure may be repeated in any other part of the picture. (Art. 44.) Thus will be formed faithful representations of O P R on a plane parallel to the picture, and intersecting the ground plane, of whose line of intersection N S (being parallel to the ground line) is a part.

Third part of Prob. II.

(46.) It was next required to draw the representation of a surface, parallel to the perspective plane, at a *lesser* distance than any given. This given distance must not be the distance of P R O, or of any figure drawn by the scale at the sides of the picture, since nothing *nearer* can be represented than by that scale. (Art. 21.) Let then the equilateral triangle *b m d* be the figure given, of which a copy is required at a nearer point, as N on the ground plane. Parallel at *m* to the ground line draw a straight line *m e*, equal to the radius of the circle *b m d*. Through the extremities of this parallel draw C O, C T. These lines will cut from off the ground line, a portion O T, here representing 3 feet. At N, draw N S parallel to *m e*, or O T, and meeting C T in S, N S will be the representation of a length of 3 feet, the radius of *b m d*, removed to N, on a nearer plane parallel to the picture; and having N S for part of its line of intersection with the ground plane.

(47.) It may often be more convenient to draw the scale of the ground line (or rather the scale of C B, the

Painting. Of Outline.

principal distance) on a line parallel to some line in the figure to be copied. Thus the side P O, in the triangle O P R, being equal to about 5 feet, the lines O C, P C, drawn from its extremities, will cut off N X and *b m*, representing a length of 5 feet at the distances N and *m*.

Another mode of operation for Prob. II.

(48.) Another method of determining the size of objects on a plane parallel to the picture, according to their distance from the spectator, is by dividing, or multiplying, proportionally to the distance required, any line in the figure to be copied. Thus the radius of O P R, or the line O T equal to the radius of O P R, may be used to express the distance of the required object from the spectator: and may be divided so that one portion of it shall express the distance of the figure O P R from the spectator; and the other portion of it express the distance of O P R from its intended copy. Let it be required, for example, to represent O P R at a distance of 24 feet. O T may be conceived to consist of twenty-four equal parts, sixteen of which express the principal distance, or distance of the plane of O P R; (Art. 39;) and the remaining eight the distance of the plane of O P R from that of its copy at N or U. O T, therefore, being divided into three equal parts, will express the required proportions, *viz.* two-thirds for the distance of O P R; the remaining third for the distance of O P R from the copy at N or U; and the whole (as was before said) for the distance of the plane of N from the spectator's eye. One of these two portions of O T will give the scale of the representation sought for, *i. e.* will be the size of the copy of O T at the point N. It will be that portion of O T, expressing the distance of the figure of which the copy is to be made, *viz.* the portion O 5, two-thirds of O T. This portion will represent, at N, or U, or any where in the picture, the radius of O P R on a plane parallel to the perspective plane, and 24 feet distant from the spectator.

For second part of Prob. II.

(49.) Accordingly, N S is equal to two-thirds of O T, and is a representation of a line of the same length with O T at the distance of 24 feet from the spectator. But O T measures 3 feet. N S, therefore, divided into three, will form a scale of feet for the copy of the figure O P R at N or U; or for that of any other figure on the same plane of N or U, parallel to the picture. Or the copy may be made by lines parallel to O P R, each of which is two-thirds of the length of its original.

(50.) Again, as another example, let it be required to represent a copy of the figure X Q N at twice the distance of N. The line N S, divided into two equal parts by a parallel from its centre to C O, cutting C T at *e*, will give the radius *m e* of the representation required: and *m e*, accordingly, divided into three, will be a new scale of feet for the figure copied at *m*, or for any other figure on the plane to which it belongs parallel to the picture.

For third part of Prob. II.

(51.) But if a given surface, as *b m d*, parallel to the picture, is to have its similitude represented nearer to the spectator, and consequently on a larger scale: multiply its diameter, its radius, or any other line in the figure, by *the denominator of the fraction expressing that portion of its distance at which you mean to place the given surface.* If, for example, you wish *b m*, or *b d*, or *d m*, or *m e*, to be drawn in perspective at *half* their present distance, multiply any one of those lines by 2, *i. e.* make it twice its present length. If you desire it to be one-third of its distance, multiply by 3, *i. e.* make it three times its present length. If you reduce it to two-thirds, multiply by 3 and subtract 1. If to one-fourth, multiply by 4. If to three-fourths, multiply by 4 and subtract 1. If to two-fifths, multiply by 5, and subtract 3. If to three-fifths, multiply by 5, and subtract 2. If to four-fifths, multiply by 5, and subtract 1. The quantity subtracted being always equal to the difference between the numerator and the denominator of the fraction, whenever the numerator exceeds 1.

No distance to be attempted less than the principal distance.

(52.) In this latter operation, care must be taken that *no distance* on the picture be attempted *less than the principal distance;* (Art. 21;) for instance, if the triangle *b m d* is represented 48 feet distant from the spectator, and it is desired to represent the same triangle at a fourth part of that distance: the answer is, that such a representation on the picture I G H K, with the principal distance B C, is impossible; because a fourth part of 48 feet is a distance of 12 feet; consequently 4 feet less than the principal distance B C, and situated out of the plane of the picture, on some other plane between the spectator and the nearest object, (as O P R,) that can be drawn on the picture.

The foregoing methods accord with optical phenomena.

(53.) The optical principle upon which both the foregoing methods are founded, may be thus briefly explained. Let the eye of the spectator at E (plate vi. fig. 1) be directed towards P O, X N, and *b m*, each equal to O T, that is, to a radius of the circle O P R in the last figure: (plate v. fig. 1:) each upon planes parallel to each other, and to the perspective plane: (O P being on a surface (plate vi. fig. 1) in the perspective plane itself; X N, and *b m*, on parallel surfaces in planes beyond it:) and each at the several distances, O E, N E, and *m* E.

O E, being the distance of the picture, or principal distance, equal to C B, (plate v. fig. 1,) will be 16 feet. Consequently, N E (half as far again) will be 24 feet; and *m* E (three times the distance O E) 48 feet. It is evident that the line P O, at the distance of O, appears to the eye at E under the angle P E O. Removed to N it appears under the angle X E N; and removed still further to *m*, the same line appears under the still smaller angle *b* E *m*. These differences of its apparent magnitude are expressed on the line P O itself: its apparent length at the point of distance N being Z O; and its apparent length at the point of distance *m* being Y O. Also, observe, that P O, divided into two parts O Z and P Z, having the ratio of 2 to 1; O Z may be used to express 16 feet, being the distance O E; P Z 8 feet, being the distance P X or O N, and therefore P O (the whole line) 24 feet, being the distance N E. Or if the division is made at Y, (O Y being one-third of O P,) then O Y expresses the distance O E, 16 feet; P Y, twice that distance, 32 feet, being the distance P *b*, or O *m;* and P O expresses the whole line E *m*, being a distance of 48 feet.

(54.) It is further manifest that Y O, the representation of *b m* on the plane of the picture, must, in order to represent *b m* (half that distance) at N, be multiplied by 2, *i. e.* must be increased to the length of O Z; and that if X N be brought one-third *nearer*, or *b m* be brought to O, Y O must be multiplied by 3, *i. e.* increased to the whole length of O P. (Art. 51.)

(55.) Another remark to the purpose of our illustration is, that if O Y be multiplied by 3, (that is, increased to the length O P,) it will either represent *b m*, three times greater at the distance *m* E, or the same size at its nearest distance O E. Also that if X N be moved

perpendicularly to and fro, along and between the lines m O and b P; a line drawn from X to E, (at any time during the progress of X N,) will intersect O P in some one of the several points between P and Y, and show the apparent magnitude of X N, or of its equal O P, at any point of distance between O and m. So that the line O P is at all times divisible into two parts; of which (if the whole line be used to express the furthest distance, as E m, required for the object) one part shall express the distance (as O m) of the plane of the object from the plane of the picture; and the other part shall express O E, or the principal distance. The learner will see, therefore, that the scales by which O P may be thus divided, are infinite in their variety; since every *new distance of the object demands a new scale* greater or less, according to that distance. This scale of O P, once determined, he has only to deduct the principal distance in feet, inches, or any fixed measures of length from the line O P, expressing similar measures, and graduated according to a particular scale determined by the distance of the plane of the object from E.

A separate scale required for each separate plane parallel to the perspective plane.

(56.) Other examples (plate v. fig. I) are added, to which all the foregoing rules and observations may be again applied. $g\ a\ c\ f\ h$ represents the gable end of a cottage, 9 feet broad from g to h, 13 feet high from g to a, or from h to f; its ridge at c, 17 feet from the ground; and the edges of its roof $a\ c$, and $c\ f$, each equal to nearly 6 feet. These dimensions are ascertained by drawing lines from C, through g and h, to the scale on the ground line, and thus at r and n on the plane of the picture will be shown, by lines parallel to $g\ a$, $a\ c$, $c\ f$, and $f\ h$, (see the dotted lines in the figure,) the magnitude of the object at its nearest representation (Art. 52) on the plane of I G H K.

(57.) Or these dimensions may be also known from a scale upon $g\ h$, drawn similar to that at the ground line, by means of straight lines from C to the divisions of the ground scale.

(58.) To represent the same figure $g\ a\ c\ f\ h$ at any greater distance, and consequently on a *smaller* scale: draw lines, g C, a C, c C, f C, h C, within which any parallels to the lines of $g\ a\ c\ f\ h$ will give the representation required; and the scale of this new representation is found by lines, as before, from C to the ground scale, dividing $t\ i$ into nine parts, representing 9 feet.

According, then, to these three scales ($i\ t$, $g\ h$, and $r\ n$) are determined, in this example, the relative sizes of the square window, and of the chimney, at the several distances of each plane: *viz.* the scale of the ground line, or $r\ n$, for the plane of the picture; the scale of $g\ h$ for the plane of $g\ h\ c$; and the scale of $t\ i$, for the plane of $t\ i\ y$.

It is evident that the side of the cottage $g\ a\ c\ f\ h$ may, (Art. 44, 45, 46,) at any distance, be represented (according to the scale of that distance) in any other part of the picture: for example, on the plane of $t\ i\ y$ it may be drawn either at the intersection with, and on the same level with the ground plane, as at L; or 18 feet higher, as at W; or 23 feet lower, as at Z.

(59.) Next, to proportion the apparent dimensions of the surface $g\ a\ c\ f\ h$ to its distance. Let the divisions on that portion of the ground line (*viz.* $r\ n$) which is cut off by producing Cg, and C h, be changed to signify the number of feet (or any other measures of length) at which the plane of $g\ a\ c\ f\ h$ is distant; say 24 feet. Out of these 24 equal parts, sixteen (the number of feet in B C, the principal distance) will be found equal to $g\ h$. Or, without altering the ground scale, $g\ h$ may be found thus, 24 : 16 :: 9 : 6, giving 6 feet, taken from $r\ n$, for the length of $g\ h$. In the same manner, $t\ i$ being compared with $g\ h$, (according to the scale of $g\ h$,) its distance from $g\ h$ is found. Multiplying 24 (the distance of $g\ h$) by 9 its length, and dividing the product by $4\frac{1}{2}$, (the number of feet which $t\ i$ measures on the scale of $g\ h$,) we obtain 48 feet for the distance of $t\ i$. In other words, $t\ i$ being equal to one-half of $g\ h$, must be twice (Art. 54) the distance of $g\ h$, *viz.* 48 feet from the spectator, the half of which, *viz.* 24, will be its distance from $g\ h$: $g\ i\ t\ h$ may, therefore, represent the floor of a room 24 feet by 9, the nearest side of which is 24 feet distant from the spectator.

A Gothic window, 18 feet high, is also represented, according to the foregoing methods, at the distance of 48 feet from the spectator. It is recommended to the student to practise the above problem with any other principal distance; that is, with any other radius to the circle of vision than C B: and not confining himself to 16 for its divisor, to choose any other number.

The student advised to draw figures and examples of his own for these problems.

Clearness and facility will also result from drawing every example on different sides of the picture.

CASE II.

Of planes perpendicular to the perspective plane;* which include three varieties, *viz.*

I. Planes parallel to the *horizontal* plane.

II. Planes parallel to the *station* plane.

III. Planes neither parallel to the horizontal nor to the station plane.

Rules and Observations.

Vanishing point.

(60.) That the point where the perspective plane intercepts a straight line drawn through the spectator's eye, or point of view, parallel to any original straight line, is the vanishing point of that original line.

Vanishing line.

(61.) That the vanishing line of any original plane contains the vanishing points of all straight lines in that plane, which have parallels intercepted as above.

(62.) That of the two extremities of every straight line, infinitely produced, or extended both ways upon its original plane; one extremity extending *from* the spectator, reaches a point represented in the vanishing line of that original plane. The other extremity *towards* the spectator, reaches a point in the base line of the same plane. (Art. 19, 20.) This extension of any line to its vanishing and base points is called an *indefinite representation.*

Indefinite representations.

Base lines.

(63.) That all lines whatever of intersection with the plane of the picture by original planes extending *towards* the spectator are *base lines;* and all points of intersection with the plane of the picture, by lines similarly extended, are *base points.*

Base points.

Vanishing and base lines parallel.

(64.) That the vanishing and base lines of every plane are *parallel* to each other.

Same vanishing line serves for all parallel planes.

(65.) That every plane has its own base line apart from every other; but that all parallel planes have the same vanishing line. For example, the horizontal line H L (plate vii. fig. 1) is the vanishing line of all planes parallel to the horizon; and the station line B D is that of all planes parallel to the station plane. (Art.

* Otherwise denominated (Art. 34) planes of which the vanishing line passes through the centre of the picture.

11, 17, 18, 34.) And, indeed, any straight line whatever, *passing through the centre of the picture*, is the vanishing line of such planes perpendicular to the picture as have their bases parallel to that vanishing line. A similar rule holds (as will be seen in Case III.) with any straight line *not passing through the centre of the picture*. It is the vanishing line of all planes parallel to each other which have their bases parallel to it, and which admit of no other central distance.

Parallels to the base are substituted for it.

(66.) That, in most instances, when the actual base line of any plane is difficult to be reached on the perspective plane, another parallel base may be substituted. (Art. 21.)

What planes have neither base nor vanishing line.

(67.) That planes parallel (as in Case I.) to the plane of the picture, having no intersection with it, *i. e.* no base line, have likewise no vanishing line. (Art. 34.)

(68.) That the vanishing and base lines become one and the same line for any plane, that, passing through the centre of the picture, is perpendicular to the perspective plane.

The horizontal vanishing line and the station vanishing line.

(69.) That, therefore, the vanishing and base lines of the horizontal plane are one and the same straight line, called the horizontal line. (Art. 11 and 17.) And that, also, the vanishing and base lines of the station plane are one and the same, called the station line. (Art. 17.)

Are perpendicular to each other.

(70.) That the horizontal and station lines intersect each other in the form of a cross at right angles at the centre of the picture. For example, the horizontal line H L (plate vii. fig. 1) is at right angles with B D, the station line.

(71.) That a perpendicular from the eye of the spectator to any vanishing line, intersects the plane of the picture in a point called the centre of that vanishing line. (Art. 22, 23.)

The centre of a vanishing line is the vanishing point of all perpendiculars to the base of its plane.

(72.) That the centre of any vanishing line is the vanishing point of all lines perpendicular to the base of the plane to which they and their vanishing line belong. For example,

In plate II.	fig. 1.	H	is the vanishing point of the line	*m t*	the original of which and its parallels are perpendicular to their base, or to	*q m*
		L		*m x*		*q m*
	fig. 2.	C		*n o*		*i v*,&c
	fig. 3.	P		*u r*		*b g*
Plate III.	fig. 1.	C		*g f*		*e g*
		C		*j p*		*j k*
		Z		*h l*		*d h*
		V		*b h*		*a b*
		W		*y u*		*y &*
Plate IV.	fig. 1.	X		*b a*		*b e*
		V		*b f*		*b e*
Plate V.	fig. 2.	V		*a e*		*s a*
		L		*a f*		*s a*
Plate VII.	fig. 1.	C		A *n*		A X
		C		*a l*		*a b*

With many more examples which might be mentioned, and which the reader will discover for himself. The above are here given to render him familiar with the plates. He will observe that the distance between C, the centre of the picture, and any other points denoted above (in the left-hand column) by capitals, is the *central distance*. (Art. 24, 26.)

All lines perpendicular to the picture vanish in its centre.

(73.) That, consequently, the vanishing point of all original straight lines perpendicular to the perspective plane is the centre of the picture.

(74.) That the centre of all vanishing lines passing through the centre of the picture, is that central or principal point itself of the picture; and is the extremity of the line called the principal distance, which is perpendicular both to the vanishing line and to the plane of the picture. (Art. 10, 22.)

Principal point is one extremity of the principal distance

(75.) That the centre of any other vanishing line, *i. e.* of any not passing through the centre of the picture, is at the extremity of a perpendicular, drawn, like the principal distance, from the spectator's eye, and called the *direct distance*, perpendicular to the vanishing line, but *not perpendicular to the plane of the picture*. (Art. 23.)

How the direct distance differs from the principal distance.

(76.) That all parallel lines in the same plane, have the same vanishing point. For example: (plate ii. fig. 1:) L is the vanishing point of the parallels *i s* and *e u* in the same plane, and of *i s* and *q v* parallels in another plane. Again, the vanishing point is C (plate ii. fig. 2) of the line *n o*, and also of the lines *m* C, *i* C, *k* C, *s* C, *t* C, *v* C, &c. represented in the same plane with *n o*. (Art. 33.) See further the vanishing point P (plate ii. fig. 3) of *u r*, and also of its parallels *a* P, *b* P, *d* P, *e* P, &c. In like manner V (plate v. fig. 2) is the vanishing point of the parallels *i h* and *w k*, in the plane *i* V *w*, and also the vanishing point of *i h* and *s x*, parallels in the plane *s* V *i*. L is here the vanishing point of the parallels *a f*, *s i*, *e d*, and *x h*. Observe, moreover, (plate vii. fig. 1.) C the vanishing point of all the perpendiculars to the perspective plane.

The same vanishing point serves for all lines parallel to each other

(77.) That if the extremities of any number of equal and parallel straight lines lie between two parallel straight lines, the representations of the latter meeting in their vanishing point, shall determine the perspective proportions of the former. (See Prob. II. Art. 43 to 59.)

Proportions to be determined on parallel lines.

Problem III.

Prob. III.

To prepare the Perspective Plane for Case II. viz. the Case of Planes perpendicular to the Plane of the Picture.

Plate VII. Fig. 1.

(78.) Draw the straight line H L, representing the level of the horizon; and in that horizontal line, choose a point for the centre of the picture, opposite to which is the spectator's *station*. Through C draw the perpendicular B C D, to mark the intersection of the station plane with the picture. (Art. 70.) Describe, with the principal distance P C for radius, the circle D P B S. This will be the circle of vision; the base of a cone, of which P C is equal to the altitude. (Art. 12, &c.)

(79.) Or, if the line of the horizon is not conveniently found, draw B D; the original of which, by means of a plumb-line, may be at any time most accurately obtained. (Art. 40.) Then with the centre C, (the height of the eye,) on that station line, and with B C, or D C, equal to the principal distance (Art. 10, 11) for radius, describe the circle of vision as before; and draw H L through C, perpendicular to B D. Let next the parallels E G, F I to the station line, and E F, G I to the horizontal line, be drawn *ad libitum*, any where within the circle, and limiting the intended representation. (Art. 13.)

Boundaries of the picture are occasional substitutes for base lines

(80.) These rectilineal boundaries will, it is evident, be useful as occasional base lines. (Art. 21.) E F and G I occasionally as the base lines of planes parallel to the horizon; E G and F I occasionally as the base lines of planes parallel to the station plane. (Art. 17.) They may be substituted for base lines of any planes, whose vanishing lines are parallel to them. (Art. 54.) For example, E G may sometimes stand for the base line of

Painting.

All bases represent parallels to the picture.

a plane of which F I is the vanishing line, or *vice versâ*. F E may stand for the base line of a plane, of which I G is the vanishing line, or *vice versâ*. Indeed, *any straight line parallel to the plane of the picture may be represented as a substitute for a base line* of the plane to which it belongs. (Art. 123.)

Division of the principal distance into a scale to be transferred to the ground line and to each adjacent side of the picture.

(81.) Where an exact measurement of objects is to be made, divide, as in Case I., the principal distance into equal parts, representing poles, yards, feet, or any measures of its actual length. These parts it will be convenient to set off, as before, on the sides G I, F I of the drawing. (Art. 40.)

Preparation of a certain number of vanishing points.

(82.) Where a number of angles are required to be put into perspective, it is convenient at the points B and P, S and D, to make a number of angles, from 10° upwards on each side of the radius or principal distance; *i. e.* in the present example on each side of C P, C B, C S, or C D. The lines forming these angles will intersect the horizontal and station lines; (plate vii. fig. 2;) and the points of their intersection, such as those marked 10, 20, 30, 40, &c., on H L and B D, will be the vanishing points of all lines in any planes parallel to the horizontal and station planes: (Art. 61:) according to the angle made by each line with the base line of the plane to which it belongs; or made with any parallel to that base line.

(83.) The whole difficulty, indeed, of practical perspective, may be said to consist in drawing such a straight line as shall represent any required angle made by the original of that line with the base of the plane to which it belongs, or with any other line: and also, secondly, in representing a straight line, divided into any number of portions, according to any given ratio.

The first part of this difficulty may be termed the *division of angles;* the second part the *division of lines.*

Dividing points.

st of angles.

(84.) The dividing points of any *angle* are the respective vanishing points of the lines which divide the angle. Thus, the points C and K (plate i. fig. 4, No. 1.) are dividing points of the angle A L B, to which points the lines L C, L K being drawn divide the angle A L B into portions A L C, C L K, K L B, corresponding to the divisions A E C, C E K, and K E B, of the original angle A E B. (Art. 28.)

dly of lines.

(85.) The dividing point of any *line* is to be found in the vanishing line of the plane to which the line to be divided belongs; and is the point from which intersections being drawn to a scale, on the base, or on its parallel, will divide the line according to its required proportions. No example could occur in Case I. to show the division of angles; since the planes there considered are all parallel to the plane of the picture, and can contain (Art. 34, 67) no line with a vanishing point.

n Case I. he dividing oint of *nes* is the entre of the icture.

(86.) But respecting the division of *lines*, it will have been evident that in Case I. *the dividing point* for all straight lines in planes parallel to the perspective plane *is the centre of the picture.* (Art. 77.) For example, C (plate v. fig. 1) is the dividing point of the lines *t i*, *g h*, *m e*, N S, O T, O R, O P, P R, X Q, *b m*, U V, &c., because C (Art. 72, 73) is the centre of the vanishing line of the plane of O C P, R C P, and O C R, as well as of the plane of O C *n*, or ground plane; to which planes the divided lines *t i*, *g h*, *m e*, N S, &c. belong, as well as to planes parallel to the picture. (Art. 33.)

(87.) For we may here take occasion to observe that, as every straight line whatever is liable to be the common intersection of any number of planes; so the expert tactician in perspective will choose that plane which enables him to make his representation with most facility. (Art. 33.)

Of Outline.

(88.) In the preparation of the perspective plane for Case II., it will be often necessary to provide for a great many other vanishing points besides those marked on the horizontal and station lines; since the number of vanishing lines of planes perpendicular to the plane of the picture, is equal to the number of diameters that can be drawn to the circle of vision. (Art. 72, 74.) To provide, therefore, for any other vanishing line besides H L or B D, (see plate vii. fig. 1,) arcs of circles may be drawn, with a common centre C, cutting any vanishing line of Case II., as K M, at the same central distances with those marked on the horizontal and station lines, C 10, C 20, C 30, &c.

Further preparation of vanishing points for Case II.

One example given out of numberless others.

(89.) The points thus found (in the vanishing line K M) will be the vanishing points of lines making the complements of those angles 10°, 20°, 30°, &c. with the base of the plane to which K M belongs. For example, in the graduations upon this or any other vanishing line the complement (or difference from 90°) at the vanishing point marked 10° is 80°; at the vanishing point marked 20° is 70°; at the vanishing point marked 30° is 60°; and so of the rest.

Angle made by any line with the base of its plane may be known by means of degrees marked at its vanishing point.

Problem IV.

Prob. IV

To find the vanishing point, and to give the indefinite representation of a line that belongs to any plane perpendicular to the plane of the picture, and to find also the original angle made by the given line with the base of the plane to which it belongs.

Plate VII. Fig. 1

(90.) If the given line be found to vanish in the centre of the picture, the angle made by its original has been already stated in Art. 73. Otherwise let *e d* (plate vii. fig. 1) be the given straight line. As in this proposition the base of the plane to which the line belongs (or some parallel to the base) is supposed to be known, draw two parallels to the base; one, as O C R, for a vanishing line through the centre of the picture; (Art. 72, 74;) the other, *a b*, as an occasional base, (Art. 21.) and let these parallels be so drawn as to include the given straight line between them. Then continue the given straight line at both extremities e and *d*, till it reaches both the parallels at *f* and O. O *f* will be its *indefinite representation.* (Art. 62.) Its intersection (marked 40°) with the first parallel or vanishing line O C will be the vanishing point. (Art. 62.) Its intersection with the latter parallel or base line *a f*, at *f*, will be the base point. (Art. 63.)

Vanishing point and indefinite representation found.

(91.) Next, to find the original angle represented by O *f a*, (namely, the *angle made by the given line with the base of the plane to which it belongs,*) raise at the centre of the picture a perpendicular, as C M, to the vanishing line, and let this perpendicular equal the principal distance. (Art. 27, 28.) Join by a line, as M O, the furthest extremity of this perpendicular with the vanishing point. A right-angled triangle will thus be formed; in which, out of the two angles at each extremity O and M of the hypothenuse, the one at O opposite the principal distance is equal to the angle required in the above problem; *viz.* equal to the angle represented by O *f a*, made by the given line with the base of the plane to which it belongs: and the other at M

Original angle found

Painting.

equal to the difference of that angle C O M from 90° represented by O f C.

(92.) Both these angles at O and M, by means of parallels to C M and M O, may be transferred to the base at the point f, where we have K $f a$, equal to an angle of 50° made by the original of $e d$ with the base of the plane $f a l t b$; secondly, $a f$ O, the perspective representation of that angle; and thirdly, K $f m$ equal to O M C, an angle of 40° as marked upon the vanishing line O C R, of which latter angle the representation will be O f C as above stated, if a line, as f C, be drawn from the base point to C. (Art. 28.)

Observations connected with the foregoing problem.

(93.) The learner will here perceive that the angles of the triangle O f C are representations of those in the triangle O M C, *viz.*:

The angle O C M represented by O C f
C O M = K $f a$ ... by C O f = O $f a$
O M C = K $f m$ .. by O f C (Art. 28, 92.)

(94.) And as the vanishing point O belongs to a side, as O C, of these triangles which is common (Art. 33) to both, so every vanishing point, as O, takes very properly the name of the angle at f or M opposite the common side O C. Thus,

if K $f a$, at the base, (the angle represented by O $f a$,)	be	then O M C or K $f m$ (represented by O f C)	will be
	10°		80°
	20		70
	30		60
	40		50
	45		45
	50*		40
	60		30
	70		20
	80		10
	90		0

The convenience also of this mode of marking the vanishing points will abundantly appear in the next and following problems.

Examples to illustrate Prob. IV. in each of the three varieties of Case II.

Thus far has been laid down in general terms a rule for the operation in Prob. IV. Examples of the rule in each of the three varieties mentioned in Case II. may now be stated.

(95.) i. To exemplify it where the *plane* to which the given line belongs is *parallel to the horizontal plane*. Let the lines representing the top and bottom of a small rectangular box at x, (plate vii. fig. 1,) be extended (since both surfaces, upper and lower, are parallel to each other) to the vanishing line H L (Art. 65) of both planes. Two lines in each will be found to vanish at a point L marked 50°, and two at a point marked 40°, on the opposite side of the perpendicular B C. Next, lines B 50° and B 40° being drawn, will show the angles made by each line with the base of the plane to which it belongs, or with any parallel to that base, such, for instance, as the ground line. (Art. 28, 66, 80.) The lines vanishing at the point 40° will be found to make an angle of 50° with their base. The lines vanishing at 50° will be found to make an angle of 40° with their base. (Art. 93.) The two books on the floor and a bird-cage at the upper part of the picture are introduced for similar illustration. The lines bounding the cover of the lowest book, will, if produced, meet the horizontal line at their two vanishing points marked 45° in the circumference of the circle of vision. An angle of 45° will consequently be the angle made by each of those lines with the base, or with any other parallel to the horizontal line. Another book above this, supporting the portfolio $a l b t$, has two edges of its cover parallel to the base, *i.* e. to H L, or to the ground line. These have, therefore, no vanishing point, (Art. 67, 85,) and are drawn according to Case I. The remaining edges reach their vanishing point (Art. 73) at C the centre of their vanishing line, and are accordingly perpendicular (Art. 72) to the base line of the plane to which they belong. The wires of the bird-cage being parallel to the picture, have no (Art. 67, 85) vanishing point; and being also parallel to the station line, are, therefore, so drawn by the method in Case I.: but the lines which complete its sides being in horizontal planes perpendicular to the picture (Art. 33, 87) have their vanishing points in the horizontal line; and will be found to make angles of 45° with the base line F E.

Of Outline

To avoid confusion from multiplicity of lines, the several indefinite representations just mentioned have not been drawn on the plate, but are left to be supplied by the learner. We shall now, however, give other examples, which, to some readers, may prove more satisfactory. Let the lines which bound the representation $t m x o$, of a square, (plate ii. fig. 1,) be produced to their vanishing points at H and L. From the extremity W of the perpendicular W C, (Art. 27, 28, 91,) a line W H, to the vanishing point of the representation m H, will give the angle W H C = $g m$ B; (the inclination of the original of $m t$ to the base $g z$, or to any other base parallel to it;) *viz.* an angle of 45°. Again, the angle made with the base by the original of $m x$ may be similarly found, and ascertained to be equal to $z m$ F; and also the angles at which the originals of $q i$ and $q v$ are inclined to a base drawn through q; or inclined to $g z$, or to any other parallel base. In plate ii. fig. 3, the sides of the parallelogram $j r e$ vanish in the points P and Q, which (as C P and C Q are each equal to the principal distance) will be found, as in the last example, and as they are found always, the vanishing points of all lines in Case II. that make 45° with their base. The square bottom (plate iii. fig. 1) of each of the three lower boxes was hinted (Art. 35) as another example. The lines $e m$, $g f$, $j p$, $k r$, &c. vanish in the centre of the picture, and therefore represent right angles with their bases $e g$, $j k$, &c. (Art. 71, 72, 73.) Another box (plate iv. fig. 1) is introduced, to the bottom of which (parallel to the horizontal plane) belong the lines $b a$ and $b f$ vanishing at X and V, and representing, by the angles $a b t$ and $f b c$, the original angles P X C and P V C equal to the inclinations at b to the base $l c$. Lastly, the originals of the angles $b a e$, and $f a z$, (plate v. fig. 2,) made with the base $b z$, are obtained by raising the perpendicular P C at C the centre of the picture and drawing P V, P L. The original angles will be P V C and P L C. If further illustrations be required, they may be easily made by reference to the steps of the spiral staircase, pl. viii. fig. 1.

ii. Examples to Prob IV. in plane parallel to the station plane

(96.) ii. To give examples in a *plane parallel to the station plane*. Of all such planes the station line (plate vii. fig. 1) B D is the vanishing line, (Art. 65,) and their occasional base line on one side is E G, or its parallel; on the other side is F I, or its parallel. The picture-frame $i v g$ hangs by the cord $i s r$, against the side of a room parallel to the station plane. Two sides of the frame

* As in this particular example.

parallel to the base F I, and therefore parallel to the perspective plane, (Art. 67,) have no vanishing point, and are drawn according to Case I; but the remaining two sides have their vanishing point in the station line at C, (Art. 72, 73,) and the parts of the cord *i s*, and *v s*, have their vanishing points also in the station line, (Art. 61, 62,) each marked 55°. Fifty-five degrees subtracted from 90° will leave 35°, the angle made by *i s*, or *s v*, with the base I F; so that if either of them be continued to its base point, and at that point a parallel to P.55 be drawn, the angle of 35° will be found made by the line *s i*, or *s v*, with the base of the plane to which they belong. (Art. 91.) Again, the glass door in the opposite wall at E has its parallels to the base E G drawn according to Case I. (of parallels to the perspective plane;) but the boundary lines at its upper and lower edges, together with the horizontal divisions of the glass, have their vanishing point in the centre C of B D, their vanishing line, (Art. 72, 73,) and are therefore perpendicular to the base E G. (Art. 72, 73.) The divisions E *z*, and *y z*, of the semicircular window will have their vanishing points at 72° and 36° on the station line; that is, E *z* inclined 18° to the base; and *y z* 54°. The indefinite representations are, in the examples following, drawn at large. Such boundaries of the planes (plate iii. fig. 1) *d z m e*, *h i f g*, *j p o*, *s r k*, &c. as are not parallel to their base line, or (what is the same thing) not parallel to the plane of the picture; will vanish in their vanishing line W V, namely the station line. And in this instance, since they vanish in C, the centre of their vanishing line, (Art. 72, 73,) they must represent perpendiculars to their respective bases *d e*, *h g*, &c. A further example occurs in plate v. fig. 1, where *g a c f h* is supposed to represent the interior of a building. Its sides *a i g*, and *f t h*, being parallel to the station plane, will have their boundaries *g i*, *h t*, &c. vanish in C, the centre of their vanishing line, (Art. 72,) which boundaries are therefore perpendicular to the bases *a g*, *f h*.

iii. Examples to Prob. IV. in the third variety of Case I.

(97.) iii. To give examples in planes with *any other vanishing lines* than the horizontal and station lines. Observe (plate v. fig. 1) the two sides of the roof of the building *g a c f h*. The vanishing line of the plane of *f c y* must be drawn through C parallel to c *f*, and its base another parallel. (Art. 64, 80.) In like manner the plane of c *a y* must have its vanishing line drawn through C parallel to *a* c, and its base another parallel. (Art. 64, 80.) The line of the ridge c *y*, and its parallels at *a* and *f*, vanish in C, and are therefore perpendicular to the base. (Art. 72, 73.) Their indefinite representations will be *a* C, c C, and *f* C, and the points *a*, c, and *f*, their base points, provided *a* c and c *f* be used for occasional base lines. Also, of the three sides of the prism, *viz.* the side P *b d* R, the side R *d m* O, and the side P *b m* O, the first mentioned being parallel to the horizontal plane is already explained; but the two latter must have their vanishing lines drawn through C, parallel to their bases P O and O R. (Art. 64.) Their boundaries P *b*, R *d*, and O *m* vanish in C, the centre of their vanishing line, and are, therefore, perpendicular to the bases O P and O R. (Art. 72, 73.) It is evident that the indefinite representations P *b*, O *m*, and R *d*, or of any part of them, will be C P, C O, C R: and the points P, O, and R their base points. Again, (in p.ate ii. fi. 2,) the several planes, to all of which the line *n* o is common, (Art. 33, 87,) being planes perpendicular to the plane of the picture, must have vanishing lines that pass through its centre C, parallel to their several bases *i v*, *k w*, *s z*, *t m*. (Art. 64.) Now, as *n* o, and its several parallels *i* C, *k* C, *s* C, &c. vanish each in the centre C of its vanishing line, they must each make a right angle with, or be perpendicular to, the respective bases of each *i v*, *k w*, *s z*, &c. (Art. 72, 73.) The lid of a rectangular box, *o s k j*, (plate iii. fig. 1,) has its nearest boundary parallel to the perspective plane This is therefore the base line of the plane, comprising the top of the lid. To this base let the learner supply a parallel (Art. 64) for a vanishing line drawn through C. The indefinite representations, as here given, will vanish in the point C; and consequently will represent right angles with their base. The same result may be obtained by drawing through C a vanishing line to the plane of the lid attached to the uppermost of the boxes. The indefinite representations there drawn vanishing in C will there again represent lines making right angles with their base. But to practise himself thoroughly, let the learner make a large copy of each plate, and draw on any one of the lids of the boxes, any lines not parallel to the base of its plane: and after finding their vanishing points, by producing them to their vanishing line, let him ascertain by Prob. IV. the angles represented by them at their base points. Further examples are given in plate vii. fig. 1. Suppose on the leaf of the portfolio *a b t l* the drawing of some plan, or rectilineal figure. Each of the lines inclined to the base of its plane, as well as *e d* already noticed, (Art. 90, 91,) will have its vanishing point in O C R, the vanishing line of the plane *a b t l*. (Art. 62.) And if each line in the figure be extended both ways, one extremity of each will have its base point in the line *a b*, which, if necessary, may be extended for the purpose: and the other extremities will reach their respective vanishing points in the line O C R. (Art. 63.) There are eleven lines in the figure. One of them being parallel to O C R and *a b* (the vanishing and base lines) will have, therefore, no vanishing nor base point; (Art. 67;) but each of the remaining ten will have its indefinite representation peculiar to each. The reading-desk placed on a round table on the opposite side of the station line, is another example. In K M, the vanishing line of the plane to which its inclined surface belongs, will be found the two vanishing points of the four lines which contain the cover of the volume. (Art. 61, 62.) These four lines being produced to K C M, will reach the point marked 40 on one side of C, and the point marked 50 on the other side; and if produced at their other extremities to the base at *n*, their indefinite representations are also found, together with angles 50° and 40° made with the base line of their plane. A thousand other and, perhaps, better ways of exemplifying by similarly inclined planes, what has been here advanced, may exercise the invention of the student; such as the roof of a house, the top of a coach, the deck of a ship, &c. &c.

Problem V

Prob. V.

Given the representation of any point in a plane perpendicular to the plane of the picture: to draw a straight line representing any given length from that point, and also representing at that point any given angle either with the base of the plane to which the line belongs, or with any other straight line.

Painting.

(98.) Let the given point be *f*. (Plate vii. fig. I.) Either the base or the vanishing line is supposed to be known. To one therefore or to the other of these, draw a parallel *a f b* through *f*. Through C, the centre of the picture, draw the vanishing line O C R : then make at *f*, with the occasional base *a f*, an angle K *f a*, equal to that which the intended line at *f* is to be represented making with the base line. Next raise, to the vanishing line O C R, a perpendicular at C equal to the principal distance ; and from its furthest extremity at M draw M O parallel to K *f*. O will be the vanishing point of the intended line, and O *f a* the representation of the intended angle K *f a*.

Representation found of a given angle made with the base.

(99.) In some instances it may be more convenient to make the perpendicular at C *on the same side* of the vanishing line *with the given point*. (Note to Art. 29) The rule, in such instances, is to construct the intended angle *on the same side* of the base *with its representation*. Thus O C R (plate ix. fig. 1) being the vanishing line, C its centre, and C M the principal distance perpendicular to O R on the same side with the point *f* ; let K *f* be drawn between the base and the vanishing line, making with the base the intended angle K *f a*. Then M O parallel to K *f* will give the vanishing point O of the intended line : and the angle O *f a* will represent the intended angle K *f a*. It is next required to cut off, at any given point, any portion from the indefinite representation *f* O, and to divide that portion in any given ratio. Draw *k f*, making at *f* the intended angle *k f a* with the base. The portion to be cut off must first be expressed either on the line *k f*, or on the base *a f* ; and may be measured from the point *f*, according to the scale of a plane (Art. 58) parallel to the picture, containing the line *a f*, or *k f*, which scale is determined as in Case I.

The same found by another method.

Let then the point in the indefinite representation *f* O, be the point *f*, for the nearest extremity of the intended section. It is required to cut off a portion that shall represent *q f*, measured from the point *f* according to the scale fixed upon. (Art. 58.) If the measurement be made on *k f*, draw (from the furthest extremity *m*, of the perpendicular *m* C) the line *m q*, cutting *f* O in *p* : *p f* will be the portion of O *f* representing *f q*.

Representation found f a given portion cut off from any line drawn to its vanishing point.

(100.) It is not necessary always to draw the base *a f* through the given point. Let the given point for example be *n*. A line from *m* through *n* will meet the line *k f* at *h*. Then measured from *h*, let the portion required be *h q* ; draw *m q*, as before : *p n* will be the representation of *q h*.

(101.) If it is inconvenient to draw the perpendicular *m* C, let M C be drawn, as before, on the same side with the given point *f*. Then, with M O, (the parallel to K *f*,) or with *m* O, (the parallel to *k f*,) for a radius, and the point O (the vanishing point of O *f*) for a centre, describe an arc S M, or S *m*, which shall cut the vanishing line O R in the point S. S will be the dividing point of the line *f* O. (Art. 84, 85.) So that if *q f* be measured on the base *a f*, then a straight line S *q* from the dividing point to the base, gives *p f*, the section required. Or if, as above, the given point be *n*, then a line from S through *n* will meet *a f* in *h* ; and *h q* measured from *h*, will be represented by *n p*.

Dividing point found.

Or let the point in the indefinite representation *f* O be the point *p*, for the *furthest* extremity of the intended section. First, through the given point *p*, draw *m q*, intersecting *k f* ; or S *q* intersecting *a f* ; and then measuring from the point *q* towards *f*, you obtain, as before, *p f*, and *p n*, representing *q f* and *q h*.

Of Outline.

(102.) Thus, in the division of lines, the artist has the advantage of two methods, one of which may be often useful to prove or correct the other. In determining also which of the dividing points *m* or S shall be used to divide *f* O ; he will find the more eligible of the two for accurate delineation, to be that point from which the dividing lines descend upon the line O *f*, so as to make angles with it the nearest possible to right angles.

Advantage of having more than one method.

(103.) A third method is by drawing diagonals to a parallelogram, of which the line to be divided forms one side. Thus let D 5 (plate ix. fig. 2) be the indefinite representation of a line vanishing at the point 5, and belonging to a plane whose vanishing line is C L ; and let D E be the portion to be divided into a number of equal parts. Mark off a portion of the base, as D W, from the point D to express the intended division.

A third method of dividing any line thrown into perspective

Draw W 5 ; and draw, through E, B E, parallel to the base. Next draw the diagonals W E and D B. A line F H through their point of intersection, (which represents the centre of the parallelogram,) and drawn parallel to the base, or to C L, will cut D E in the point H, and represent the original of D E bisected in H. In the same manner, by drawing the diagonals of the parallelograms W D H F and F H E B, the lines D H and H E will be respectively bisected ; and thus, by these repeated bisections, D E be divided so as to represent any *even* number of equal parts required.

(104.) But this method may be made equally serviceable with the two former, by extending either of the diagonals D B or W E to its vanishing point in the line C L, produced both ways to any required length. Let, for example, W E be produced to its vanishing point in C L ; then divide W D, according to the scale of the plane it belongs to, (Art. 57, 58,) and according to the division you intend to be represented by D E. Choose for this purpose any point, as G, and through G draw a straight line to the vanishing point of W E. This will represent a parallel (Art. 76) to W E ; and will cut the line D E in H, giving D H for the representation of G D required, and also H E for the representation of G W.

(105.) Or if it be more convenient to produce the other diagonal D B to its vanishing point, then the division D G on the base must be made in an opposite direction from the point D at I. From I draw to the vanishing point of D B, the representation of a parallel to D B, (Art. 76,) which will cut D E in H, as before.

(106.) It was next proposed to divide *p f*, (plate ix. fig. 1,) the portion obtained from O *f*, *according to any given ratio*. For this purpose let a division be made of *q f*, either on the base, or on *k f*, by a scale adapted to the distance of the plane which contains the given point *f* from the spectator, (Case I. Art. 49—58,) and let *q f* be separated into the intended number, and according to the intended ratio of parts, say 5 equal parts. If these 5 parts be measured from *f* upon *k f* ; then 5 lines from *m* to each division of *q f* will cut *p f* into the representation of the 5 equal parts. Or if the five sections be measured from *f* upon the base, along *a f* ; then 5 straight lines from the dividing point S in the vanishing line, will divide P *f* exactly as before.

The above division made according to any given ratio.

(107.) The student will observe that if *q f* be *multiplied*, instead of *divided*, and be increased to any extent, *p f*, its representation, will be proportionally enlarged. Also, that this work of division, or of multiplication, may

A line may be *multiplied* as well as divided by this pro-

Painting.

cess, which may begin at either extremity of the line.

begin from either extremity of the given line; from p as well as from f or n; provided the point q be first found, by a line from the dividing point S through p to the base, or from m through p to $k\,f$.

(108.) It was further required to draw, at the point f, a line representing *any given angle* with O f, or $p\,f$. Here the learner must revert to what was stated in the last problem concerning the representation of angles. The angles (Art. 93) of the triangle O C M (plate vii. fig. 1) were stated to be represented by the angles of the triangle O C f. So, in the present instance, (plate ix. fig. 1,) if a line f C be drawn, it will represent a perpendicular to the plane of the picture. (Art. 73.) Then the angle O f C will represent the angle made by the original of f O with that perpendicular, *viz.* the angle O m C or O M C; and O C f will represent the right angle O C M, or O C m. In like manner, if any other line, such as $f\,x$, or f R, be drawn, not representing perpendiculars to the perspective plane, but having vanishing points on either side of C, in the same vanishing line with that of O f: any two of these lines, making any angle with each other at the base point f, and being produced to meet the vanishing line, will cut off a portion of it, and make, with that portion of it, a triangle. And of this triangle, the three angles shall represent corresponding ones in another triangle, which has the same common portion of the vanishing line for one side; and an angle opposite that side at m, or M, the original of the angle made by the two indefinite representations at f.

Lastly, by Prob. V. to represent another line making any given angle with the line found as above.

Thus, in the figure, the angles

of the triangle O $x\,f$	represent	O $x\,m$, or O x M.
of the triangle O C f	those of	O C m, or O C M.
of the triangle O f R		O m R, or O M R.

Consequently, of these three triangles, the three several angles at f represent their corresponding angles at m, or M; *viz.*

The angle O $f\,x$	represents	O $m\,x$, or O M x.
The angle O f C		O m C, or O M C.
The angle O f R		O m R, or O M R.

(109.) To draw a line, therefore, which shall make a given angle with the indefinite representation O f, let the line m O, or M O, first be drawn to the vanishing point of O f, and let the intended angle be then made at the point m, or M, with the line m O, or M O. This line will cut the vanishing line in some point, as x, or C, or R. The point of this intersection is the vanishing point of the new line required to be drawn from f. (Art. 84.) and the angle made by that line with O f will represent the required angle.

Another method for this representation.

(110.) Another method is, to make the intended angle at the point f upon the base. In this process, the angle made by the original of O f with the base must be expressed by a parallel, $f\,k$ to m O, or f K to M O; and the intended angle, as $k\,f\,w$, or K f W, being added to $a\,f\,k$, or $a\,f$ K, let the perpendicular at C (m C or M C) be raised, as before, equal to the principal distance. Then, from the point m, or M, let M x be drawn parallel to f W; or let $m\,x$ be drawn parallel to $f\,w$; the point x will be the vanishing point of the new line $f\,x$, making the representation O $f\,x$ of the intended angle $k\,f\,w$, or K f W, O $m\,x$, or O M x.

(111.) It is manifest that the angle K f W, or $k\,f\,w$, O M x, or O $m\,x$, may be constructed of any size, and divided accordingly: consequently, that $x\,f$ O may be divided into as many representative angles as there are vanishing points between O and x. Also, that as any angle may be reduced, so may it by the foregoing method be increased. If the number of degrees are marked with accuracy, the practitioner will have less trouble in the process. For instance, the number of degrees at O being known, if he intends 10°, or 20°, or any other number to be the angle represented, he reckons along the vanishing line from the point O, (either way, as occasion shall require,) counting the point O for zero. The number marked at O in the diagram here drawn, is 40°, and a line is to be drawn representing an angle of 5°, with O f at the point f, on the side nearest C. The interval, therefore, of 5° will be 5° short of 40°, *viz.* 35°. So, if the angle was to be made on the side of O f, furthest from C, the interval would be 5° more than 40°, or 45°. It will be seen (Art. 89, 94) that the angle O $f\,a$ represents 50°; the angle O $f\,x$ 5°; and $x\,f$ R $= 35 + 40 = 75°$.

Of Outline.

Increase or reduction may be represented of any angle, to any proposed number of degrees, minutes, seconds, &c.

(112.) According to the preparations of the perspective plane hitherto given, each division graduated on the vanishing line generally counts for 10°, but it seems scarcely necessary to remark that a graduation, more or less minute, must be adopted as circumstances require it. Some examples of the three varieties in Case II. may be now acceptable to the learner.

Examples to illustrate Prob. V

(113.) i. On a plane *parallel to the horizontal plane.* The box $d\,h\,e\,g\,f\,m$ (plate iii. fig. 1) rests on a square bottom $e\,m\,f\,g$, which is parallel to the horizontal plane. The lines therefore, $e\,m$ and $g\,f$, must be constructed to represent originals equal to $e\,g$. For this purpose, draw the line $e\,w$ at the point e, making with the base or its substitute $e\,g$, (Art. 21,) the angle $w\,e\,g$, *viz.* the angle made by the original of e C, with the base of the plane to which it belongs; which angle, in the present instance, is a right angle. (Art. 72, 73.) Next, from the extremity N of the principal distance (perpendicular (Art. 27, 98) to the vanishing line H L of the plane of e C g) draw N w, which will cut the indefinite representation e C in the point m, through which $m\,f$, a parallel to $e\,g$, will complete the representation $e\,m\,f\,g$ of the square bottom of the box.

i. On planes parallel to the horizontal plane.

Perpendiculars at m and f to the ground plane (in other words, parallels to a plumb-line, or to the station line) will cut d C and h C in the points i and z, and will thus complete the upper square of the cube. Or, if the process, by means of a diagonal, is preferred, let the diagonal $w\,g$ be drawn, to which a parallel N H will cut the vanishing line H L in H, the vanishing point of the diagonal $g\,m$, and representative of $w\,g$. Having so found the point m, proceed as before. Three other boxes, purposely drawn at various distances, afford similar examples.

Again, (plate ii. fig. 1,) the square bottom $t\,o\,x\,m$, of which the boundaries vanish in the points H and L, is found by drawing F m at the point m, so as to make the original angle F $m\,z$ with the base; then by completing the square on m F, and afterwards its representation by lines from W to B, K, and F, which will form intersections at t, o, and x. Or, the point t may, in this example, be found by a diagonal through x, parallel to its original B F; (Art. 38;) since B F is here parallel to the vanishing line. Or, 3dly, the point x may be obtained by a portion of the base line $m\,g$ equal to $m\,z$, and on the opposite side of m. It is manifest that whatever be the angles made by B m, or

Paint-ng. F m, with the base line, lines parallel to them at W (Art. 84, 109) will give, on the vanishing line H L, the vanishing points of their indefinite representations m H and m L. Of Outline.

Another method (plate iv. fig. 1) is shown for the representation, $a\,x\,f\,b$, of a rectangle; by finding the indefinite diagonal $b\,y$, and drawing through any point in it (as x) lines from X and V, (the vanishing points,) cutting the indefinite representations b X and b V in points a and f corresponding to the proposed point x. The point y is obtained by dividing the angle X P V into portions X P y and y P V, equal to the angles to be represented at b, on each side of the diagonal. In this example, the original of $a\,x\,f\,b$ being a square, its diagonal will bisect each angle; consequently, the angle X P V must, to obtain the point y, be bisected by P y.

Representation of a circle. A similar illustration is given in the rectangle (plate v. fig. 2) $a\,e\,d\,f$. An example, in plate viii. fig. 1, is adduced of a circle divided into thirty-six parts of 10° each, to be represented on the ground plane. The diameter 1, 19 being drawn, together with eighteen parallels, 2,18; 3, 17; 4, 16, &c. (nine on each side.) will cut the base line A B (Art. 41) in nineteen points, from each of which let an indefinite representation be drawn, which, in the present example, (since their originals are drawn perpendicular to the base A B,) will vanish in T, the centre of the picture. (Art. 73.) At that centre T, let a perpendicular (Art. 27, 98) be raised equal to the principal distance, and from its extremity, as in former examples, let a line be drawn to the original point R; this will cut the indefinite representation 19, T, in a point representing the centre, from which radii drawn to the vanishing points X, XX, XXX, &c. will intersect the several lines vanishing in T at the points 2, 3, 4, &c.; or, lines from the further extremity of the principal distance, (or perpendicular raised at T,) may be drawn to the thirty-six points in the original circle at R; and these dividing lines will intersect the parallels vanishing at T in corresponding points, 1, 2, 3, 4, &c.

An example is given (plate ix. fig. 3) of twelve lamps suspended from twelve points, equidistant from each other, in the circumference of a circle. Let i be its centre, and i 12 its radius. And let the twelve points to be represented for the suspension of the lamps be numbered 1, 2, 3, &c. corresponding to the number affixed to each lamp. Straight lines from M, as M 1, (or M g,) M 2, M 3, M 4, &c. to the twelve points in the circumference of the circle will cut the corresponding indefinite representations of the parallels vanishing at O (Art. 76) in the twelve points of suspension. Thus, let it be required to find the point a for the suspension of the lamp No. 1. Draw the base $v\,l$ parallel to O R. (Art. 64.) Choose a point, as g, for the original suspension point of No. 1 to be represented. Also choose some point in the vanishing line O R, as O, for a vanishing point of the parallels necessary to the representation of the circle. (Art. 76.) Draw M O, and through any points in the circle draw any number of straight lines parallel to M O. In the present example, the number is twelve, *viz.* the parallel l 4, and eleven others to the left of it. All these parallels are drawn through the twelve original points of division. Next, from the point u, where the parallel $g\,u$ cuts the base, draw the indefinite representation u O. Then draw from M, (the dividing point,) the straight line M g, to the original point g. M g will intersect u O, in the point a, the representation of g; and a, consequently, will be the point from which the lamp No. 1 is suspended.

In like manner, the other indefinite representations being drawn to O from the several points of intersection on the base $v\,l$, the remaining eleven points may be found for suspension of the lamps marked 2, 3, 4, &c. Thus the indefinite representation z O is intersected by the line M 2; the indefinite representation l O by the line M 4; and the indefinite representation v O by the line M 10. These intersections are the suspension points for the lamps No. 2, No. 4, and No. 10. So also of the rest.

(114.) It is evident that when all the several required points in the circumference of the representation have been by this process obtained, radii may be drawn from its centre to each of the twelve or more divisions; and that these radii will be the representations of corresponding radii in the original circle g 2, 3, 4, &c. The centre of the representation is easily found. Join any two opposite points, as 6, 12, in the original circle. Find then the vanishing point of the representation of that diameter. In the present instance, that original diameter is perpendicular to the base $v\,l$. Its representation, therefore, will vanish in the centre of its vanishing line, and its vanishing point (Art. 72) will be C. Lastly, a line M i will cut the indefinite representation x C in s. This point s, accordingly, will represent the centre of the circle.

To complete the figure: draw now $s\,y$ representing a parallel to the plumb-line; (Art. 40, 79;) and choose a point, as r, for the centre of the plane of the upper surface of the lamps, which are here supposed to be of exactly similar and equal dimensions, and to be suspended by cords or chains of equal lengths. Choose another point, as y, for the centre of the plane of their lower surface. Lines through r and y drawn to the vanishing points of the six diameters of the representation will cut off from each of the twelve parallels to $s\,y$ a portion representing the apparent size of each lamp, according to its distance from the spectator. Of the twelve points in the circle 1, 2, 3, &c. the nearest to the perspective plane is here numbered 12. The most distant is numbered 6. The lamp No. 12 will therefore be represented largest; the lamp No. 6 smallest; and the other ten of intermediate sizes. The proportions of all are obtained by reference to a scale on $r\,y$; since the axis $s\,y$ is common to the six planes s 3 y 9, s 2 y 8, s 1 y 7, s 12 y 6, s 11 y 5, and s 10 y 4. Also $s\,y$, being parallel to the plane of the picture, may be used for an occasional base line of any of the planes to which it is common. (Art. 33, 80, 87, 123.)

(115.) Here, then, is afforded an example of a number of lines making various angles with the base of the plane to which they belong, and with each other; *viz.* twelve radii drawn from s to the points of suspension, each making with its adjacent radius an angle of 30°. This number of radii may at any time be increased according to any fresh division of the original circle g 2 3, &c. By extending any two radii to their vanishing points on O R, the value of the angle between them will be shown. The vanishing point of the line $d\,p$, for instance, is at 30°, and that of the line $a\,s$ at 30° on the other side of C. Therefore $30 + 30 = 60°$ will be the value of the angle represented by $a\,s\,d$. In like manner, is valued the angle $b\,s\,a$ formed by $b\,s$ vanishing at 60°, and $s\,a$ vanishing at 30°. $60 + 30 = 90°$ will be the

value of the angle represented by $b\,s\,a$. Observe, that the value of any angle, if the two lines vanish on different sides of C, (*i. e.* of the centre of their vanishing line,) is determined by addition; but if on the same side, by subtraction. Thus $b\,s$ vanishes at 60°, and $d\,s$ at 30°; $60 - 30 = 30°$ will be the value of the angle represented by $b\,s\,d$.

Also it will be observed that in order to represent a circle, it is not always, as in this example, necessary to divide the circumference of the original into *equal* parts, but that any lines drawn arbitrarily, provided they be parallels to the line that determines their common vanishing point, (which line is here the line M O,) will answer the purpose; because their indefinite representations will be always proportionally intersected by the dividing lines from M in some corresponding point in the circumference. Thus the point f is represented by the point c, formed by the intersection of the dividing line M f with a line $x\,9$ (supposed drawn at random) parallel to M O.

Other examples in the first variety of Case II.

(116.) Another application of Problem V. to the case of a plane parallel to the horizontal plane, appears at an opposite part of the plate, (fig. 4,) in the outline of a small footstool. Through the point b (the nearest corner of the projected rectangle $b\,g\,j\,o$) draw the occasional base $d\,c$ parallel to O R, (Art. 64,) and make $b\,d$ to $b\,c$ in the same ratio as are to each other the two sides of the original rectangle; according to a scale (see Case I.) adapted to the distance of the point b from the spectator. (Art 39, 58.) Suppose the vanishing point of one side, $b\,g$, be the point marked 30°. The complement of 30 is 60°. The other side, $b\,o$, therefore, will vanish at 60°, on the right side of C, on the vanishing line O R. Find the dividing point of the indefinite representation b 30, (Art. 101,) and cut off $g\,b$, according to the scale of $b\,d$, determined as in Case I. Then find the dividing point of the other indefinite representation b 60, and cut off $o\,b$, according to the scale of $b\,c$ or $d\,c$. The lines o 30, and g 60, will intersect each other at j, and complete the top of the stool; and if a diagonal, as $b\,j$, be drawn, it will meet O R at some vanishing point between 30° to the left and 60° to the right of C.

(117.) The vanishing point of this diagonal is regulated by the ratio which the two adjacent sides of the rectangle bear to each other. If they stand to each other in a ratio of equality, then, $b\,d$ being equal to $b\,c$, the rectangle will be a square; and the diagonal $b\,j$ will meet O R at a vanishing point marked 15°, *i. e.* midway, or 45° from the vanishing point of $b\,g$, or $b\,o$, reckoning to the right and left from those points as from zero.

But if one side, as $b\,c$, is greater than the other, then the angle represented by $g\,b\,o$ must be divided unequally; the two parts of it having the same ratio to each other as $d\,b$ has to $b\,c$. The dividing point of this angle (Art. 84) will be the vanishing point of the diagonal that passes through it, represented here by $b\,j$. To illustrate the above, let the whole line $d\,c$ be divided into as many parts as there are degrees in the original of the angle $g\,b\,o$, *viz.* into 90 parts. Let 30 parts be allowed for the side $d\,b$, and 60 for the side $b\,c$. Since the vanishing point 30 has been given or chosen for the side $g\,b$, representing $d\,b$, and since the angle $g\,b\,o$ has been given as representing 90°: the sum of 90° (*viz.* 30+ $60 = 90$) will bring the vanishing point of $b\,o$ considerably to the right of C, and fix it at 60° to the right: and the diagonal $b\,j$ will vanish at 30° to the right, dividing (by a line, m 30, drawn to that dividing point) the original right angle, 30 m 60, into two shares: one, 30 m 30, an angle of 60°; the other, 30 m 60, (to the right of C,) an angle of 30°. And these two shares will correspond to the two divisions of the line $d\,c$, and to the angles represented by $j\,b\,g$ and $j\,b\,o$ formed by the diagonal with each side of the rectangle: that is, the share $j\,b\,g$ (representing 60°) will correspond to the side $b\,o$, representing sixty parts of $d\,c$; and the share $j\,b\,o$ (which represents 30°) will correspond to the side $b\,g$, or the representation of the *remaining* thirty parts of $d\,c$. Let the learner, for the sake of practice, draw this diagram above as well as below the vanishing line; according to each variety of Cases II. and III.; and with sides of various lengths vanishing at any other points than those in the above example. For a reason before stated (Art. 95) such lines are left out in the plate as may be supplied without difficulty.

Next determine the height $b\,l$ of the footstool, according to the scale $b\,d$ or $b\,c$. (Art. 44—46, 48.) Lines l 30, and l 60, will show the proportionate length of the legs of the stool. Observe, in this figure, that the angles at b and j are each of them representations of a right angle at m or M; since the lines 30 m and 30 M are perpendiculars to 60 m and 60 M. But parallelograms making any other angle may be chosen for examples.

The next example (plate ix. fig. 5) is supposed taken from the interior of a church, and gives the outline of two pews, similar, and of equal dimensions; the floor of each being a representation of the rectangular parallelogram $s\,e\,\mathrm{T}\,\mathrm{X}$. Let the base $a\,s\,e\,g$ be drawn, and the lines s C, e C. Then find on the vanishing line O R the dividing point (Art. 101) for the representation $e\,t$, *viz.* the point marked 45, on either side of C. (C 45 being equal to C m, or C M.) From the point e, along the base $a\,s\,e\,g$, mark off $e\,g$, or $a\,e$, equal to e T. A straight line g 45°, or a 45°, will cut e C in t, and give $e\,t$ for the representation of e T. Or a line m T from the dividing point m, in the furthest extremity of the perpendicular m C, (Art. 98,) will make at the point t a similar intersection of eC. Through t, the line $t\,y$ (parallel to $s\,e$) will cut off $i\,s$, the representation of s X equal to e T: and $i\,t\,e\,s$ will represent the parallelogram $s\,e\,\mathrm{T}\,\mathrm{X}$. In like manner, the floor of the pew $z\,u\,r$ is found. Let a new occasional base through the point t be drawn on a line with $i\,t$. A line a C will cut off from the new base a portion $y\,t$, representing $e\,a$, or $e\,g$, at the distance of t, (Case I.) and lines from the dividing points m, or 45°, will cut off from t C the representation of a portion equal to the original of $t\,e$. Then a parallel to $i\,t$, or $s\,e$, through n, will complete the rectangle as before. But observe, if the dividing point m be employed, either a parallelogram similar to $s\,e\,\mathrm{T}\,\mathrm{X}$, and similarly placed, must be constructed on the new base $i\,t$, according to the scale of the plane of $i\,t$, (Case I. *passim*,) or the originals e T, s X must be produced at their extremities T and X to twice their length, *viz.* s X to &; and e T to Q.

Next, to represent the hexagon, and the triangular divisions of the carpet. As the triangles are equiangular, each angle will be 60°. Also, as one side is parallel to the base $s\,e$, the other sides will make each an angle of 60° with the base, and will therefore have their vanishing points marked 30° (the complement of 60°) on each side of C. (Art. 94.) From e to s mark off divisions each equal to the line 1, 2, (below the base.)

Painting.

and draw e 30, &c. Then through the intersections at 1 and 2 (above the base) in the representation, draw the parallel 1, 2, to *s e*: and, lastly, to complete the hexagon, the parallel 5, 6, through the intersections at 5 and 6. Observe here, as in the last example, that the angle made by the lines 1, 6, and 2, 5, crossing each other, is the representation of an angle at *m* or M, made by two radials drawn from M or *m* to two vanishing points on each side of the centre of the vanishing line, which in this example are numbered 30°.

(118.) Observe, also, that if, in an equilateral triangle, one side be parallel to the base, the vanishing point of one of the two remaining sides will be the dividing point of the other adjacent side. Thus, in *o e* 6, the representation of an equilateral triangle, lines *o* 30 and *e* 30, being drawn; the vanishing point of *o* 6 is the dividing point of *e* 6; and *vice versâ*, the vanishing point of *e* 6 is the dividing point of *o* 6.

Annexed to this figure is an outline of alternate square and octagonal divisions in the floor of the aisle. The sides of each octagon will be found to vanish in the same points with the sides and diagonals of each square. Thus *g* 45, to the left, is the vanishing point of two sides; *g* 45, to the right, the vanishing point of the two at right angles with them. Two other sides, being parallel to the plane of the picture, will have no vanishing point; and the remaining two being perpendicular to the base of their plane will vanish at the centre C of its vanishing line.* The square B *m* F K (plate ii. fig. 1) will have its indefinite representations *m* H and *m* L vanish at H and L; while the representation *t x* of its diagonal B F, will, like the original, be parallel to the base *g z*. (Art. 36.) That of the other diagonal *m* K, perpendicular to *g z*, must vanish at C. Make *g m*, *m z*, on the base, each equal to a side of the square. Find Y, the dividing point of *m* L, and with Y C for a radius, and C for a centre, cut C L in the dividing point of the indefinite representation *m* H. Lines to *g* and *z* from these dividing points will obtain the points *t* and *x*. Or, one of these points being found; a parallel to the base drawn through it will procure the other point. Or, from W, the furthest extremity of the perpendicular W C, draw lines W F, W B, which will cut *m* L and *m* H in *x* and *t*. *x* H and *t* L will then intersect each other at *o*, and complete *o t m x*, the representation of *m* B K F. Of the three squares on the ground plane (plate iii. fig. 1) the indefinite representation *g* H of the diagonal *g w*, will intersect *e* C at the point *m*: *m f*, parallel to *e g*, will next intersect *g* C in *f*, and complete the bottom of the box *e d z h g*. So of the rest. A similar process (plate iv. fig. 1) obtains the angle *a b f* representing X P V: also, *b a* and *b f*, the representations of *l b* and *b* c. Also *a f* and *a e* (plate v. fig. 2) the representations of *a z* and *a b*; and the angle *e a f* representing V P L.

An example is given (plate vii. fig. 1) of a round table. In that representation, only a fourth part of the circle is visible, (since E G I F is the boundary of the picture,) so that the quadrant D W T is sufficient for the required construction. And as no regular division of the circumference is there necessary, the parallels are drawn intersecting the base X A at random. Since they are perpendicular to X A, their vanishing point will be C, the centre of their vanishing line. (Art. 72.)

* Let this construction be applied to Case III., as, indeed, may most of the examples in Case II, by using only the Direct instead of the Principal distance.

To construct the lesser circle beneath the table, find the centre *n* of the table by a line B T, or S X (X A being made = A T;) cutting A C in the point *n*, and giving A *n* for the representation of A T or A X. Fix the interval A W between the parallel planes of the two circles, which (see Case I.) must be measured according to the scale of the base A X. Draw W C. A parallel *n o*, to the plumb-line or station line, will give *o* to represent the centre of the lower circle. Next subtract A W, or any required portion, from the radius of the larger circle (below the base) and describe the inner quadrant T R. Then proceed with parallels upon the new occasional base W Y, as before upon the base X A. Numerous architectural illustrations might be here introduced for delineating circular columns, walls, pavements, &c., in all which the process would be the same as above detailed.

Of Outline.

(119.) ii. Some examples were, secondly, proposed for Prob. V. on a plane *parallel to the station plane*. The station line must now take place of the horizontal; and be resorted to, as in the last problem, for the vanishing points of all lines on any plane parallel to the station plane. (Art. 65.) The side (plate iii. fig. 1) of the cubic box, together with its parallel side *d z m e*, and four other square sides (also parallel) of the two boxes to the right of it, are all examples of planes perpendicular to the picture, and at the same time parallel to the station plane. Their vanishing line will be W V, (the station line,) and their vanishing point will be C, the centre of the picture. (Art. 72, 73.) In order to the representation *g h i f*, let the line *h g* be taken as a base; and let *h* C, *g* C, be drawn. From L, the furthest extremity of the perpendicular L C, raised at the centre of the vanishing line, (Art. 27.) lines drawn to the points *d* and *e* will intersect the indefinite representations at *i* and *f*. The line *i f* will then complete the object: or, a line *g* N to N, (the vanishing point of the diagonal *g i*, and dividing point of lines vanishing in C,) will give the point *i*; through which a parallel, *i f*, to the base will answer the purpose. An example in the preparatory plate for Case II. (plate vii. fig. 1) was given of a glass door surmounted by a semicircular window. In order to this representation, the quadrant N Q *z* is sufficient to express as much of the construction as is visible (*viz.* *z* E *y r*) in the picture. Choose a point *z*, from which to begin, according to Prob. V., the intended lines and angles. (Art. 99, 109, 110.) Draw the base Q G. Make the angle N *z* G, or N *z* Q, equal to the intended angle with the base; and to be represented at the point *z*: which angle, in this instance, is 90°. Then *z* N, perpendicular at the point *z* to the base, gives the radius, with which describe the arc N Q. Raise the perpendicular C S (Art. 27) equal to the principal distance, at the centre of the vanishing line. A straight line from the dividing point S to N, or from the dividing point D to Q, or from the dividing point B to *q*, (*z q* being made equal to *z* N, or *z* Q,) will cut the indefinite representation *z* C in the point *r*, giving *z r* to represent *z* N. Next draw parallels to *z* N, between the base Q *z* and the arc Q N; and from their points of intersection on the base, draw to C their indefinite representations. Lines from S to each corresponding point of intersection made by the parallels on the arc Q N will produce, in the same manner as in former examples, the curve Q *y r*; which, in order to receive the regular divisions *z* E and *z y*, will require its prototype N Q to be regularly divided into such portions, as that a line S J shall intersect E C, the indefinite representation of

ii. To exemplify Prob. V. on planes parallel to the station plane; the second variety of Case II.

Painting. J E, at the point *y*. Observe, if any number of radii be drawn from *z* to the arc Q J N; that, as the radius *z* N is represented by *z r*, so is *z* J represented by *z y*, &c. Also the angles made by these radii and measured on the arc N Q will be represented by corresponding radii intersecting the curve Q *y r*. Thus the angle J *z* N is represented by the angle *y z r*; the angle J *z* Q by the angle *y z* Q, &c.

Observe also, that the base Q G, or Q *z*, need not coincide with E G the side of the picture, but its place is determined by that of the nearest point *z*, in the representation. A line from C through *p*, will intersect N *k* at the point *k*; with which point as a new centre, and with the radius *k* N (or any other given radius) proceed as before, and construct the representation *h p* of the quadrant *h* N.

The learner will soon perceive, that the operations above exemplified are applicable not only to circles, and arcs of circles, but *to all curves whatsoever*. More examples need scarcely be given. If he is in the neighbourhood of architectural objects, he cannot fail to discover abundant examples for himself, in the arches of a bridge, of a gateway, or of an aqueduct, as well as among the numerous picturesque specimens to be collected from colleges, castles, temples, palaces, and cathedrals. Every illustration, too, which we have introduced respecting lines that belong to planes parallel to the *horizontal* plane, may be easily converted into an example of similar lines on planes parallel to the *station* plane. For this purpose, the reader need only substitute the expression *station line* for *horizontal line*; thus viewing the plate under a different aspect, and changing into a ground line (Art. 80) what before was the right or left side of the drawing. Lines which before were parallel to the station line, will, under this new aspect, appear horizontal. Thus the side I F of the picture (plate vii. fig. 1) being taken as a ground line; the boundary of the round table may be converted into an arch; the side *g* &, of the rectangular picture-frame, into an occasional base line parallel to the new horizontal D B; and the lines C & and C *g* into indefinite representations on the ground plane, its parallel.

iii. To exemplify Prob. V. in the third variety of Case II.

(120.) The foregoing observation almost supersedes the necessity of again giving examples, as was done in Art. 97, under the third variety of Case II., namely, on a plane *neither parallel to the horizontal, nor to the station plane*. To several of the foregoing figures, let new horizontal and station lines be drawn through the centre of the picture; and let the former horizontal and station lines be no longer so named, but considered only in general as vanishing lines passing *through the centre of the picture*. Many of the examples already given will be thus available. There are, strictly speaking, but few objects in nature that are perfectly horizontal, or perfectly true to the plumb-line; whereas, the number of other vanishing lines is infinite which are included under Case II., and which form diameters of the circle of vision (Art. 11) over and above the two formed by the horizontal and station lines. Let a straight line, for example, be drawn through the centre C (plate ii. fig. 2) parallel to any diameter of the circle *i k s t v*, &c. but not parallel to the horizontal or station line.

(121.) Since the plane of the circle *i k s t*, &c. is parallel to the plane of the picture, any straight line drawn upon it may be an occasional base. (Art. 80.) Accordingly, each line drawn through C will be a vanishing line of the plane containing the diameter to which each line is parallel. Thus a line through C parallel to *i v*, will be the vanishing line of the plane *i* C *v*; and similar parallels to *k w*, *s z*, and *t m*, will be vanishing lines to the planes *k* C *w*, *s* C *z*, and *t* C *m*. And any other angle made with each base may, by the foregoing problem (Art. 98,) be represented besides the angle 90° here represented at *n*, and at the eight points *k*, *s*, *t*, &c. Also any other portion may be cut off from the indefinite representation at *n* C, besides the portion *n o*. Of Outline

The line C Q (plate iii. fig. 1) belongs also to this variety of Case II. The plane of the bottom of a box inclined to the horizon will have C Q for its vanishing line, drawn parallel to the nearest edge of the bottom of the box: which line of the edge, being parallel to the picture, may be used (Art. 80) for an occasional base. The plane of its lid requires a vanishing line similarly drawn. Moreover, if, according to what is suggested above, the line C Q be substituted for the horizontal, the lines H L and N V will furnish abundant examples as vanishing lines for the bottoms and sides of the boxes; in constructing which, the operation will be precisely similar to the mode already given.

In an introductory illustration of Case II., (plate vii. fig. 1,) a portfolio was introduced, with lines making various angles on its page *a l t b* with the base *a b*, of the plane to which they belong; and with each other. It seems sufficiently clear, from what has been explained of the process in Problem V., that any figure, curvilinear (Art. 119) or rectilinear, may be constructed and represented at any point, as at *e*, or at *f*, in that plane, according to the rules above laid down for such a representation upon all planes perpendicular to the perspective plane, or plane of the picture. We have dealt the more largely in explanatory matter to this and the foregoing problem, because the rules for similar operation in Case III., to which we now proceed, will be found, in every respect but one, (Art. 27, 29, and note to Art. 118,) exactly to resemble those we have applied to Case II.

CASE III.

Of planes neither parallel nor perpendicular to the perspective plane;* which comprise three varieties.

I. Planes whose bases are parallel to the *horizontal* line.

II. Whose bases are parallel to the *station* line.

III. Whose bases are neither parallel to the horizontal nor to the station line.

Rules and observations.

(122.) That all bases, or occasional bases, (Art. 20, 21,) of any planes included under Cases II. and III., are representations of lines parallel to the plane of the picture.

(123.) That, consequently, the representation of any straight line, of which the original is parallel to the plane of the picture, (Art. 80, 121,) may be substituted as an occasional base of the plane to which the straight line belongs.

(124.) That all planes whatsoever, which have bases parallel to the horizontal line, are perpendicular to the *station* plane and to its parallels. What planes are perpendicular to the station and horizontal planes.

(125.) That all planes whatsoever, which have bases parallel to the station line, are perpendicular to the plane of the *horizon* and to its parallels.

* Otherwise denominated (Art. 34) planes, of which the vanishing line does *not* pass through the centre of the picture.

Graduation of central distances.

(126.) That the vanishing lines of all planes described under Case II., have, in Case III., the additional employment of furnishing central distances (Art. 24) for such vanishing lines as belong to planes inclined to the picture. Their graduation (Art. 82, 88) is important for determining the angle made by such inclined planes with the picture, or with each other.

(127.) That any vanishing line included under Case II. furnishes, in Case III., a central distance to every other vanishing line which crosses it at right angles. (Art. 24.) Thus the vanishing line D M (plate x. fig. 1) passing through the centre of the picture, and therefore (Art. 24) included under Case II., is used for the respective central distances of the vanishing lines which cross it perpendicularly at the points D, R, Q, and M. Again, the vanishing line H T, (plate viii. fig. 1,) produced both ways to the required extent, contains on either side of the centre T of the picture, the central distances T X, T X X, T X X X, &c. of seventeen vanishing lines, each belonging to the plane of the front piece of a step in the spiral staircase.

Use of the direct distance in operations of Case III. resembles that of the principal distance in Case II.

(128.) That in general it is to be observed of Case III.; whatever operation was performed in Case II. by a substitution of some line equal to the principal distance will, in Case III., be effected by the substitute for the direct distance. (Art. 25, 29.)

(129.) Also that the operation to find the vanishing points or the dividing points for any angles, or for any indefinite representations belonging to planes under Case III., is, in all other respects, a similar process to that under Case II., except that the direct distance, or its substitute, must invariably be employed. (Art. 25.)

(130.) That as, in Case II., a perpendicular must be raised at the centre (Art. 27, 28, 29) of any vanishing line, for determining the vanishing point of any line or lines according to the angle made by them at the base, or made with each other; (see Prob. III., IV., and V.) so in Case III., a perpendicular must similarly be raised; but it must no longer equal the principal distance, it must here equal the direct distance.

Graduation of vanishing lines in Case III.

(131.) That as, in Case II., divisions into degrees numbered on each vanishing line (Art. 82) were made by radials drawn to meet it from the furthest extremity of a perpendicular which was equal to the principal distance, and which was raised at the centre of the vanishing line: so these divisions, in Case III., may be similarly graduated; but the perpendicular required for this preparation of the perspective plane must, in Case III., equal the direct distance.

For vanishing points.

(132.) That as, in Case II., portions of the above-named radials are cut off by the vanishing line; and each point of their contact with that line is the vanishing point of all indefinite representations of parallels, some one at least of which belongs to the plane vanishing in that line: (Art. 76:) so in Case III., similar points will be obtained for similar uses.

For dividing points.

(133.) That as, in Case II., the portions cut off from the above-named radials are equal to and measure the interval between the vanishing and dividing point of each indefinite representation, (which interval is measured from each vanishing point along the vanishing line on the side nearest the perpendicular:*) so, in Case III., each dividing point is similarly found in each respective vanishing line; but the perpendicular at its centre must, in Case III., equal the direct distance.

(134.) That accordingly, the interval between 30° and 30° measured (plate vii. fig. 1 and 2) on each side of the centre of the vanishing line, and also the interval between that centre and the point marked 45° each way, (which intervals in Case II. were equal to the principal distance,) must, in Case III., be made equal to the direct distance; and the dividing points (Art. 85) depending on those as on other intervals, will be regulated in every instance by them. Thus, to take the first of these instances:

The dividing point of lines, making 60° with any base, and which therefore vanish at the point marked 30° (Art. 94) on their vanishing line; will be another point, marked also 30° (Art. 118) on the opposite side of the centre of that vanishing line. (Plate vii. fig. 1 and 2, and plate x. fig. 1.) Again, in the next instance,

The dividing point of lines which make 90 degrees with, or represent *perpendiculars* to any base, (and consequently vanish at the centre of the vanishing line,) is a point on each side of that centre marked 45°, (plate vii. and x.) where a circle, having that centre, and the principal or direct distance (as the case may be) for radius, cuts the vanishing line.

(135.) That the dividing point of lines, representing *parallels* to the base of any plane, is the centre of the vanishing line of that plane. (Art. 86.) Consequently, as in Case II., the dividing point of such lines was in the centre of their vanishing line, *viz.* the centre of the picture: so, in Case III., the dividing point of such parallels to the base will be the centre of the vanishing line of the plane to which that base belongs; though no longer the centre of the picture.

(136.) That a difference is to be noticed between the graduation of vanishing lines in Case II. from that of those in Case III. It is a work, in Case III., of somewhat greater complexity. Every vanishing line not passing through the centre of the picture must be separately graduated; *i. e.* must, in its graduation, correspond to every change of the central or direct distance. But when any number of central distances are equal in length each to each, the vanishing lines they belong to will be graduated alike.

Certain planes *foreshortened* into straight lines.

(137.) That every vanishing line, as has been seen by the experiment of the piece of card, (Art. 32,) has one plane vanishing in it, which never presents any other appearance to the spectator but that of a straight line. It is the plane, which, produced to meet his eye, contains in Case II. the principal distance; in Case III. the direct distance. The vanishing and base lines of such a plane are always one and the same line. (Art. 68, 69.)

How to find in Case III. the centres of vanishing lines.

(138.) That to find the centre of any vanishing line not passing through the centre of the picture, either a perpendicular (*viz.* the central distance, Art. 24) may be drawn to the vanishing line from the principal point; or, with the principal point as a centre, an arc may be drawn cutting out of the vanishing line a portion, which will be the chord of the arc. That chord bisected will give at its point of bisection the centre of the vanishing line. Thus, N O (plate x. fig. 1) is a chord of an arc of the circle of vision. Bisect N O in R. R will be the centre of the vanishing line. Again, with the centre C, describe an arc cutting out, any where, a portion from the vanishing line G I, situated out of the circle of vision.

* See Art. 101 and plate ix fig 1, where the interval O S is equal to the radial O *m* or O M, and is measured along the vanishing line O R, in a direction from the point O towards the perpendicular at C.

Painting.

Principal distance in certain circumstances a mean proportional between two central distances.

Bisect the chord so cut off. The point of bisection M will be the centre of the vanishing line G I.

(139.) That the principal distance is a mean proportional between any two central distances, expressing together the sum of 90° in the amount of their graduations; and if the two vanishing lines be parallel, the centre of the vanishing line of one plane is the vanishing point of all lines perpendicular to the other plane. For example, the principal distance C A (plate x. fig. 1) is a mean proportional between the central distances C B marked 30° and C K 60°: and (their vanishing lines E B and K I being parallel to each other) K 60 will be the vanishing point of all perpendiculars to any plane, vanishing like the plane of the ship's deck, in E B; B the vanishing point of all perpendiculars to a plane vanishing in K I.

All parallel lines have the same vanishing point.

(140.) That out of any number of lines which are parallel to each other, and which therefore vanish in the same point, (Art. 76, 132,) any two may belong to a plane vanishing differently from that of any of the rest; but the common vanishing point of all the parallels will be the common point of intersection of the separate vanishing lines belonging, respectively, to each plane. Thus the point P (plate ii. fig. 3) is the point of intersection for the four vanishing lines of the planes to which the several parallel lines, vanishing at that point, belong; namely, for the

Vanishing line { at P*, P Y, P C, P Z, } of the plane of { *b* P *g*, *d* P *h*, *e* P *j*, *f* P *a*, } which contains, besides *u* P, two parallels, the originals of { *b* P and *g* P. *d* P *h* P. *e* P *j* P. *f* P *a* P.

Of any two original planes, in their relations to each other.

(141.) That an original plane, considered in relation to any other original plane, must be either, 1st, parallel to it, in which state it has been already noticed: (Art. 65:) or, 2dly, must intersect it, in which state it has been only partially noticed: *i. e.* only under Cases I. and II.

One plane perpendicular, the other parallel to the picture.

1. One plane we have seen parallel to the picture, and the other perpendicular to the picture: in which circumstances the line of *intersection* of the two original planes is always *parallel* to the base and vanishing line of one of them. *Ex. gr.* The intersections *m f*, *e g*, *p r*, *j k*, *o s*, *z i*, (plate iii. fig. 1,) made by planes of the class just stated, are parallel to H L, the vanishing line. Almost all our plates on outline supply similar examples. Or, we have seen

Both planes perpendicular.

2. Both planes perpendicular, as in Case I., to the picture: in which case the vanishing lines cross each other at the centre of the picture, which thus becomes the *vanishing point of the line of intersection;* (Art. 145;) and is the point at which the actual angle made by the one plane with the other, is always formed by their two vanishing lines. *Ex. gr.* The line of intersection, *n o* (plate ii. fig. 2,) of any two of the four planes (perpendicular to the picture) vanishes in the centre C of the picture; and the angle made by any two of the planes with each other, is to be found by drawing, through C, their two vanishing lines: or by drawing at *n* or *o*, or at any point in the line of intersection, their two bases. The latter, in this example, are already drawn. Other ways of intersection now present themselves. But, respecting the laws of intersection, observe, generally,

Laws of intersection.

(142.) That when only one of two intersecting original planes has a vanishing line, the line of intersection is parallel to that line or to the corresponding base. (Art. 65, 66.) Thus, N S, (plate v. fig. 1,) the intersection of the plane of X N Q, or of U V, with the ground plane, (Art. 45, 46,) is parallel to the base I K of the ground plane. Also another parallel to I K, in the same diagram, is *i t*; *i t* being another intersection by another plane also parallel to the picture. Here one of the two planes is parallel, and the other perpendicular to the perspective plane; and our examples are drawn from Cases I. and II. Next, for an example that refers to Case III.: *d h*, (plate iii. fig. 1,) parallel to the vanishing line V R, represents the intersection of the plane *a b h d* with the plane *d h g e*. Here one of the two planes is parallel to, the other inclined to, the picture.

Of Outline.

One plane parallel to, the other inclined to, the picture.

(143.) That when the vanishing lines or bases of any two intersecting original planes are parallel, their line of intersection will form another parallel. Thus the base and vanishing line of the plane *l k n m* (plate x. fig. 1, No. 1.) are parallel to the base and vanishing line of the plane *o m n p*. G I, the vanishing line of the former, is parallel to Q F, the vanishing line of the latter. Agreeably, therefore, to this rule, the line *m n*, of their intersection, is parallel to G I, or to Q F, or to their corresponding bases. Also *d h*, (plate iii. fig. 1,) the intersection of the planes *d a b h*, *d n l h*, and *d z i h*, or of any two of them, is parallel to their respective vanishing lines at Z, C, and V, through which points their respective centres are joined by a line Z V passing through the centre of the picture. For it invariably follows,

Vanishing lines parallel. Both planes inclined to the picture: or one perpendicular to, the other inclined to, the picture.

(144.) That when any two vanishing lines (such as described in Art. 143) are parallel to each other; a line perpendicular to both, and joining their centres, will pass through the centre of the picture or principal point. Observe, further,

(145.) That when any two vanishing lines, or any two bases, intersect each other, the planes to which they respectively belong must also intersect each other; and the line of their *intersection will vanish* at the point *where* the two *vanishing lines meet.** Thus, the centre of the vanishing line of any given plane is also found to be the vanishing point of all intersections made with the given plane by a plane perpendicular to the picture.

Vanishing lines not being parallel; the line of intersection vanishes, and where.

(146.) That for the purpose of determining the angle made by two intersecting planes with each other, the vanishing line, in most instances, must be found of a plane, which we propose to call the plane of measure. The plane of measure is a *plane perpendicular to any two intersecting planes*, which crosses perpendicularly their line of intersection and contains the two lines *measuring the angle* of their inclination to each other.

Plane of measure.

1. Measurement of the angle made by two original planes with each other whose vanishing lines are parallel.

(147.) That when any two original planes of the class mentioned in Article 141, No. 2. intersect each other, the angle made by them with each other is measured on the plane of the picture, which is itself, in such instances, the plane of measure, being perpendicular to them both.

(148.) That when any two of the class mentioned in Art. 143 intersect each other, the angle made by them with each other is measured on the central distance of the

* Perpendicular at P, to P C, its central distance.

* Since any one and the same vanishing point may belong to an infinite number of vanishing lines; and, consequently, any one and the same indefinite representation to an infinite number of planes: therefore, in most cases two vanishing points at least must be found, in order to determine whatever plane is common to or contains the two lines vanishing in those points. (Art. 31.) But in case only one point be given; then the angle of inclination to the picture must also be given, made by the plane that contains the original line vanishing in the given point. See Prob. IX.

Painting.

vanishing line (graduated as in Case II. Art. 126) of one or both planes; which central distance, it will be seen, is part of the vanishing line of the plane of measure. This measurement may happen in three ways.

1. If one of the parallel vanishing lines pass through the centre of the picture, the angle so measured is that contained *between the direct and the principal distances.* Thus the vanishing line G I (plate x. fig. 1) is parallel to H C, the horizontal line. Its central distance C M is marked 55° to express the angle C H M contained between M H the direct, and H C the principal distance. Consequently, the plane of which G I is the vanishing line is found to make an angle of 55 degrees with the plane of the horizon.

2. If neither of the two parallel vanishing lines pass through the centre of the picture, and they are situated on different sides of that centre; the angle made by their two planes with each other is the *sum* of the angles graduated on their two central distances. It is the angle contained *between their two direct distances.* Thus the last-mentioned vanishing line G I has its central distance graduated 55°: that of the vanishing line N O, on the other side of the centre of the picture, has its central distance marked 25°. Consequently, the original plane of G I makes with the original plane of N O an inclination of 55° + 25°, or 80 degrees, being the angle contained between R H and H M, the two direct distances.

3. If these two parallel vanishing lines lie on the same side of the centre of the picture, the angle of their inclination to each other is expressed by the *difference* of the numbers graduated at the extremity of their two central distances. It is the angle contained as before described, *between their direct distances* Thus, the vanishing line P D has a central distance expressing 35 degrees; the vanishing line N O a central distance expressing 25 degrees. Consequently, the original plane of P D makes with the original plane of N O 35°−25°, or 10 degrees: being the angle R L D contained between L R and L D, the two direct distances.

A line then (the vanishing line of the plane of measure Art. 146) being drawn through the centre of the picture, joining the centres of any two vanishing lines: the angle made by their two original planes with each other is obtained by the *sum or difference* of the degrees marked at their central distances.

2. Measurement of this angle when the vanishing lines are *not* parallel.

(149.) That in every remaining case for ascertaining or representing the angle made by one original plane with another, the vanishing line of the plane of measure no longer passes, as in the above three examples, (Art. 148,) through the centre of the picture; but (the point being once determined where the vanishing lines of the two intersecting planes meet) a third vanishing line is found, as will be seen in Prob. VIII., to which all lines drawn from that point shall represent perpendiculars. This third line is the vanishing line of the plane of measure. (Art. 182.)

(150.) That the vanishing line of the plane of measure being graduated according to Case III. will express, at the points where it is crossed by the two vanishing lines of two intersecting planes, the angle of their inclination to each other.

3. Measurement when one of the two planes has no vanishing line.

(151.) That when only one of two intersecting planes has a vanishing line, the angle made by the planes with each other is the same angle made by that one plane with the plane of the picture.

(152.) That to find the angle made by any plane with the plane of the picture, observe the number of degrees marked on the central distance of its vanishing line. The complement of that number to 90°, is the angle sought. It is, universally, the *angle contained between the central and the direct distance.*

Of Outline.

Angles made by planes with the picture how measured.

For example, perpendicular lines crossing the horizontal line in the points marked 10°, 20°, 30°, &c., (plate vii. fig. 2,) are the respective vanishing lines of planes which make the complements of those angles of 10°, 20°, 30° with the plane of the picture, and which have their *bases parallel to the station line.*

Also perpendicular lines crossing in like manner the station line in points marked 10°, 20°, 30°, &c., (plate vii. and x.) are, in like manner, the respective vanishing lines of planes which make the complements of those angles 10°, 20°, 30°, &c. with the perspective plane, but which have their *bases parallel to the horizontal line.* Thus the plane of which G I (plate x. fig. 1) is the vanishing line, makes an angle of 55° with the plane of the horizon, and makes, consequently, 35° the complement of 55, (*viz.* the angle C M L, or C M H,) with the plane of the picture.

In what circumstances two original planes must always be perpendicular to each other.

(153.) That all planes whatsoever, whatever be the direction of their bases or vanishing lines, are perpendicular to any plane of which the vanishing line contains their central distances. As examples to this rule, see Articles 124 and 125.

Vanishing point of all lines perpendicular to any inclined plane.

(154.) That when the graduations of any two central distances, situated in the same line, amount to 90 degrees: in other words, when any two direct distances are perpendicular to each other: their extreme points will be the centres of two remarkable vanishing lines. One extreme, or centre, will be the vanishing point of all perpendiculars to the plane of whose vanishing line the other extreme point is centre. (Art. 139.)

(155.) That when three original planes are perpendicular each to each, any one of the three becomes a plane of measure to the other two. For example, (plate vi. fig. 2,)

$$\text{The plane } \begin{Bmatrix} A \\ B \\ C \end{Bmatrix} \text{ measures the angle made by the plane } \begin{Bmatrix} B \\ A \\ A \end{Bmatrix} \text{ with the plane } \begin{Bmatrix} C. \\ C. \\ B. \end{Bmatrix}$$

The above rules recapitulated and exemplified.

A recapitulation may here be useful, and a reference, such as was given in Art. 34, to a general explanatory figure. (Plate vi. fig. 3.)

C the centre of the picture; C F principal distance; C D and C A central distances; D F and F A direct distances.

q k. Vanishing line of the planes of *t u* and *y r*, making with the picture the angle C D F. (Art. 152.)

h j. Vanishing line of the plane of *y* &, making with the picture the angle C *a* F. (Art.152.)

$$\left.\begin{matrix} W\ C\ F \\ h\ a\ j \\ q\ d\ k \end{matrix}\right\} \text{parallel vanishing lines. (Art. 143, 147, 148.)}$$

y o. Interseetion of two planes *y* & and *y r*, both inclined to the picture. It is parallel to their vanishing lines W F and *q k.* (Art. 143.)

s t. Intersection of the plane *t n*, perpendicular to the picture, cutting the plane *t u.* It is parallel to their vanishing lines W F and *q k.* (Art. 143.)

c o. Intersection of a plane parallel to the picture cutting the plane *y r.* It is parallel to *q k*, the vanishing line of *y r.* (Art. 142.)

a b Vanishing line of a plane, as *e g*, perpendicular to the picture, and also perpendicular to all planes

Painting.

whose vanishing lines, like $h\,j$ and $q\,k$, cross $a\,b$ at right angles: $a\,b$ is here the vanishing line of the plane of measure. (Art. 127, 144, 146.)

$i\,p$. Intersection of the planes y & and $z\,g$. It vanishes at a, the point where the two vanishing lines meet. (Art. 145.)

$w\,z$ and $i\,m$. Intersections of two parallel planes $s\,v$ and $y\,r$ with the plane $e\,g$. Each intersection vanishes at D where $a\,b$ meets and crosses $q\,k$. (*Ibid.*)

$w\,x$. Intersection of the plane $t\,n$ with the plane $e\,g$. It vanishes at the point C where their two vanishing lines $a\,b$ and W F meet. (Art. 141, 2.; and 145)

$p\,i\,m$. Representation of the angle made by the two planes y & and $y\,r$ (both inclined to the picture) with each other. It represents the original angle contained between the two direct distances of their respective vanishing lines, *viz.* the angle a F D graduated on the vanishing line $a\,b$ of the plane of measure. (Art. 93, 108, 143.)

$x\,w\,z$. Representation of the angle made by the plane $t\,n$ (perpendicular to the picture) with the plane $s\,v$ inclined to the picture. It represents the original angle contained between the direct and the principal distance, *viz.* the angle C F D as graduated on $a\,b$. (*Ibid*)

Problem VI.

Prob. VI.

To prepare the perspective plane for Case III. viz. the case of planes inclined to the plane of the picture.

(156.) Hitherto our outlines have extended to the delineation of but a very few changes and peculiarities in the appearance of objects. We have considered indeed, and have exemplified at large, some useful methods of drawing varieties of form as they would appear to the eye, (like partitions upon a map, or like the lines of a chessboard,) on original plane surfaces; but our inquiry has been limited to only a small part even of these: as 1. *to such planes as directly face the spectator, and are parallel to his circle of vision*; 2. *to such planes as make right angles with the plane of that circle.* We now come, thirdly, to a division of our subject by far the fullest and most satisfactory; which ought to include every remaining requisite for perspective; and which refers to every possible position of planes not remarked upon in our preceding inquiries.

It will have been observable how very sparingly, in our foregoing endeavours, we have touched upon the representation of solid figures; whereas this latter part of the subject contains all that connects the Art with the realities of Nature: and we need not say, without such a connection, how useless would be our labour. A solid, in our Article on Geometry, book i. p. 313, is defined to be "a body comprised under three dimensions, length, breadth, and thickness." To delineate, therefore, "length and breadth" only, without "thickness," would be as unpardonable in the delineator, as it would be in the Geometrician to stop short in his calculations, at the measurement of superficies merely, without regard to solid cubic contents.

Delineation of solid forms belongs commonly to Case III

But our notice of solid figures has, of necessity, been confined. We could, as yet, do nothing more than represent correctly a cube or parallelopiped, of which two sides would be parallel (as in Case I.) to the picture or perspective plane; and the other four sides perpendicular (as in Case II.) to the picture. Opportunity now occurs for representing, in the sides of such figures, each pair of parallel planes as making a separate angle of inclination with the plane of the picture. Nor need the student confine his operations to *regular* solid figures. He will find, that he may pursue satisfactorily to any extent which his curiosity and his leisure may combine to encourage, and very much further than our limits would permit us either to lead or to follow him, this interesting study: and may ascertain with perfect truth and correctness, the representations of solid forms as well in the most complex, as in the most irregular of their combinations.

Of Outline.

The subject admits a wide range, but the materials for it are limited to straight lines and plane surfaces.

(157.) In this, however, and in every application of perspective rules, it must always be understood that the *materials* for construction are straight lines and plane surfaces. The only solid figure that can be delineated without the intervention of straight lines is the sphere.* And, although it were much to be desired, for the convenience of artists, that some instrument equally manageable and simple with the common compasses were invented to expedite the process universally of curvilinear projection;† we must rest at present satisfied with regarding solids in general as bodies to be represented within any number (not less than four) of intersecting planes, whose intersections with each other at the edge of its visible surface, or "disk," to borrow a term from Astronomy, constitute the lines and boundaries comprising the object. A reference to our Plates on Crystallography may show the propriety of this definition, and will exemplify to the eye of the reader a series of outlines under great diversities of configuration formed by the intersection of plane surfaces inclined at various angles (all of which are distinctly calculable) to each other. See also the Article Bodies (regular) of our Lexicon, and plate xv. *Miscellanies.*

Number of vanishing lines required for representing a solid figure.

(158.) An opportunity here occurs (before we undertake the immediate business of this problem) of remarking upon the number of vanishing lines which belong to the representation of any given rectilinear solid. It is equal to the number of plane sides contained by the solid body, in all instances where no two sides are parallel to each other, nor any one of the sides parallel to the picture. But in every other instance, whatever number of sides are parallel to each other will have but one vanishing line, (Art. 65,) and whatever number of sides are parallel to the picture must be left out of the calculation. (Art. 67.) Reckoning first, therefore, the number of sides in any solid; deduct from it the number of parallels to any side, and like-

* Every section of a sphere made by a plane is a circle. See book ix. p. 362, of our Article on Geometry. In delineating any sphere, a plane is to be conceived as passing through its centre parallel to the plane of the picture. The section so formed will be a great circle, of which any radius may be selected and used as a base, for the purpose of delineating in perspective any other similar section. And whatever radius may be so selected, is to be regarded as the base either of a plane whose vanishing line (according to Case II.) passes through the principal point as its centre: or passes (according to Case III.) through any other point as its centre. Thus may any required number of curves, representing *meridians*, or other great circles, be drawn.

† The number and multiplicity of curves, more particularly in the application of perspective to subjects of *Naval Architecture*, as well as to tracery and fretwork in ornamented buildings, and to the delineation of *annulets, volutes, cornices*, &c., not to mention the perspective projection of even the most ordinary forms in wheelwork, and in the curvatures of machinery generally, would provide useful matter for a separate treatise. The reader will find in our Lexicon, under the word Drawing Instruments, a notice of some mechanic helps for outline in perspective, which have proved highly creditable to the ingenuity, skill, and science of the inventors

Painting.

wise the number of sides parallel to the picture. The remainder will be the amount of vanishing lines required.

An example of the varieties of position and consequent changes of outline in a cube or parallelopiped

(159.) The simplest construction is that of a regular six-sided figure, (a cube or parallelopiped,) of which two pair of sides are perpendicular to the picture, and the third pair parallel to it. (Art. 156.) For such a representation two vanishing lines only are required; (Art. 158;) and these cross each other at right angles (as we have seen in Case II.) at the centre of the picture. (See any one of the boxes in plate iii. fig. 1.)

In a solid of this form there are twelve edges or intersections (Art. 157) which complete its boundaries; and which, in the position here chosen, may be drawn with very little preparation or trouble. Four of them vanish in the centre of the picture, (Art. 145,) and the remaining eight are parallel to the two vanishing lines, four to each vanishing line. (Art. 142.) But change now the aspect of the cube or parallelopiped, and let one pair of sides vary ever so little from its position as a parallel to the plane of the picture: an entirely new arrangement must be made. Not only does the centre of one vanishing line change its place, and move out of the centre of the picture, but there is immediately required a third vanishing line for the pair of sides that had before been parallel to the picture. Of the twelve edges or intersections, only four remain parallel to the perspective plane, *viz.* (if we select for an example the box in plate ii. fig. 1) *i t*, *s o*, *v x*, and *q m*. Out of the remainder, four vanish at L, and four at H, exemplifying, in the planes they belong to, the second variety of Case III.

(160.) But a still further change may be made. As yet, only two pairs of the sides of the parallelopiped have been moved so as to make a change of angle with the plane of the picture. One pair of sides still remain perpendicular to the perspective plane, and therefore vanish as before, (according to Case II.,) in a line drawn through the principal point. Let now, then, this pair of sides also be moved into an inclined position: again, a general alteration of outline ensues throughout the figure. The number, indeed, of vanishing lines continues still the same; but the three vanishing lines no longer have their centres joined in one straight line. They now range themselves in a triangle; of which the three angles form three vanishing points (Art. 145) for the lines of intersection or edges of the figure. Thus (plate xi. fig. 1) the die, No. 4., has no longer, as at No. 3., the centres of its three vanishing lines, M, C, and P, in one line W P, but its trey-side, which vanished in M P, now vanishes in H P; its deuce-side, which vanished in P Q, (a perpendicular at P, to C P its central distance,) now vanishes in X P; and its ace-side alone retains its previous vanishing line H X. The remaining three sides of the cube, opposite and parallel to these three, of course vanish similarly to these. (Art. 65.) The outlines of the four dice in plate xi. may serve to elucidate and exemplify the changes described above. Other figures more complex than the parallelopiped might be here introduced, but we reserve them.

A graduation (to prepare for Case III.) of the central distances.

(161.) We now proceed to the preparation of the perspective plane requisite for Case III. Those lines, radii to the circle of vision, which, in Case II., we have shown to be vanishing lines of all planes perpendicular to the picture, are now required to perform another office; and to furnish materials for the respective central distances of all planes more or less inclined to the picture. (Art. 24, 25, 26, 126.) Thus C O, (plate i. fig. 2,) a portion of the radius of the circle D A B E Z Y, is the central distance of the vanishing line B O E, belonging to a plane that makes the angle of inclination X O C or P V S (fig. 3) with the plane of the picture: and C M, being a portion of another radius, is the central distance of D Z, belonging to a plane that makes the angle of inclination A M C or P L S with the picture. Of Outline

In order, therefore, to obtain with facility the vanishing lines of planes inclined to the picture, it will be proper to graduate, as was done in Case II., the horizontal or the station line, or both. (See plate vii. fig. 2.) The interval between any one of these points of graduation and the centre of the picture, will be the central distance of any required vanishing line of planes inclined to the horizon or to the station plane; provided the intersection be parallel to the plane of the picture. (Art. 143.) If the inclined planes vanish in a line parallel to the horizon, their central distances will be found in the station line. If the inclined planes, on the other hand, vanish in lines parallel to the station line, their central distances will be found in the horizontal line. For example, the following (plate x. fig. 1) being the central distances of vanishing lines parallel to H L, are found in the *station* line, *viz.*

C D, C R, C Q, C M^{55}, C M^{70} } central distance of { P D, N O, Q F, G I, B M^{70} } a vanishing line parallel to H L, the horizontal line.

And on the other hand, C H, (plate ii. fig. 1,) the central distance of the vanishing line M K, (parallel to C W,) is found in the *horizontal* line H L. With many more examples, that the reader will find without difficulty. (Art. 127.)

Uses of this graduation.

(162.) Also observe, that the number of degrees marked on the central distance of any vanishing line in the circumstances just described will express the angle of the inclination of its plane to the horizontal or station plane. Thus the number 25° marked at R, (plate x. fig. 1,) the centre of the vanishing line N O, is the number of degrees by which the plane vanishing in N O is inclined to the horizontal plane vanishing in H L. The complement of 25° is 65° or the angle C R L; being the angle (Art. 152) of inclination to the picture. Again, at L, (plate v. fig. 2,) the centre of the vanishing line M L parallel to C P; the number 55° indicates the number of degrees by which the plane of *s i f a* is inclined to the station plane: whereas the complement of that angle, or P L C, (35°,) is the angle made by the plane of *s i f a* with the perspective plane. (Art. 152.)

(163.) It must likewise be noticed, that when two vanishing lines are parallel, and have the centre of the picture situated between them, the degrees on the central distance, or the *sum* of degrees marked on their two intervening central distances, will express the angle made by the two planes with each other. For example, (plate x. fig. 1,) the plane *o m n p*, inclined to the plane of the bottom of a cart, vanishes in the line Q F with a central distance of 40°. The plane of the bottom of the cart *h i p* vanishes in the line P D with a central distance of 35 degrees. Consequently, the plane *o m n p* makes with the bottom of the cart an angle 40 + 35, or an angle of 75 degrees. If, however, the two parallel

Painting

vanishing lines lie on the same side of the centre of the picture, the angle made by their two planes with each other will be the *difference* between the degrees of their two central distances. Thus the plane of *m l k n* vanishes in the line G I with a central distance of 55°, and the plane of *o m n p* vanishes in Q F, as before said, with a central distance of 40°. And these vanishing lines Q F and G I are on the same side of the centre C. Consequently, the angle made by the plane vanishing in G I with the plane vanishing in Q F will be 55° − 40°, or an angle of 15 degrees.

Graduation of central distances; how completed.

(164.) There will likewise be necessity, as in Case II., (Art. 88,) for occasionally finding various other central distances, besides those graduated on the horizontal and station lines. Every vanishing line passing through the centre of the picture is liable to be thus graduated. (Art. 126, 161.) On such occasions, let arches of a circle concentric with the circle of vision be drawn as in Art. 88, where C M (plate vii. fig. 1) is graduated similarly to C B or C S. Thus the central distance C B (plate x. fig. 1) will be that of the vanishing line of a plane making 30° with a plane vanishing in A C, and the graduation on C P may be made most conveniently by circles having the centre C and with radii taken from the horizontal or station lines C 5°, C 10°, C 20°, C 30°, &c.

Graduation of vanishing lines.

(165.) A further preparation will be required for the vanishing lines of planes peculiar to Case III. They must be graduated by means of radials from the furthest extremity of the direct distance, which for that purpose will have been raised perpendicularly at their centres. (Art. 29, 128, 131.) For example, F G (plate i. fig. 4, No. 1.) is the vanishing line of a plane making with the picture the angle of inclination C D R. At D its centre, where it is met by C D, its central distance, raise, on either side, (see note to Art. 29,) D H perpendicular to it, equal to D R, (Art. 25,) the direct distance: or continue C D from D towards C till it equals D R. Next from H, its furthest extremity, draw other radials H F, H G, &c. making the angles at H by which the line F G is to be graduated, and marking them on each side from the point D as from zero, in the same manner as was done in plate vii. fig. 1 and 2. The vanishing line V M (plate v. fig. 2) is thus graduated. Also the vanishing lines E B, (plate x. fig. 1,) S D, G I, K I, &c. are thus graduated.

Intersecting original planes.

(166.) Under this preparatory problem it will be convenient and not inapposite to introduce a general view of the construction necessary for determining the inclination of original intersecting planes (Art. 16) to each other. *The intersection of any two lines is a point. That of any two planes is a straight line.* A slight acquaintance with the geometry of solids would here enable our student to recall the definition as given by Simpson, Playfair, or Bonnycastle, of the "angle made by two planes which cut one another," called by the former "the inclination of a plane to a plane." It is defined to be "the angle contained by two straight lines drawn from any the same point of the intersection of the planes, and drawn perpendicular to that intersection, the one in the one plane, and the other in the other. Of the two adjacent angles made by two lines drawn in this manner that which is *acute* is called the inclination of the planes to one another."

"Inclination of a plane to a plane" defined.

(167.) It is with a view of practically determining in all cases this angle of inclination, that we would proceed by means of a plane, which we have denominated the plane of measure. (Art. 146.) It is a plane in all cases perpendicular to the line of intersection of any two planes. It bears resemblance to what in Carpentry is termed a "bracket." The most indifferent mechanist must well know that a bracket rightly adjusted for fitting a corner contains an angle exactly equal to that of the inclination of the two planes which form the corner, and will be perpendicular to their line of intersection at some point in that corner.

Of Outline.

How to measure and to represent their angle of inclination to each other.

There are three different aspects of the line of intersection made by any two planes:

Three aspects of their line of intersection.

1. It may be *parallel*
2. It may be *perpendicular* } to the perspective plane.
3. It may be *inclined*

I. Where it is *parallel:* either the vanishing lines of the interseeting planes are parallel to each other, or one of the planes has no vanishing line, *i. e.* is parallel to the plane of the picture. In these circumstances, the plane of measure must be perpendicular to the picture. The vanishing line of the plane of measure will consequently (Art. 65) pass through the centre of the picture and be perpendicular to the vanishing line of either intersecting plane. The vanishing line, thus found, of the plane of measure, and graduated according to Case II., (Art 82, 88,) expresses the angle made by the two original planes with each other, (Art. 163,) as has already been exemplified.

2. Where the intersection is *perpendicular* to the picture the interseeting planes must also be perpendicular to it. (Art. 141, No. 2.) Consequently, the plane of measure is in such a case the perspective plane itself; and the angle contained between the two vanishing lines meeting at the centre of the picture is the actual angle made by the two original planes, to which they belong, with each other. Here the original angle and its representation are one and the same. For example, the plane of the circle *z m i k s* (plate ii. fig. 2) is the plane of measure for the angles *z n m*, *m n i*, *i n k*, *k n s*, &c., and is perpendicular to the common intersection of eight planes, *viz.* to *n o*, vanishing in the centre C of the picture. (Art. 145.) The representation of these angles, therefore, belongs to Case I., and the construction of them resembles that of those in the triangles O P R, X N Q, &c. (Plate v. fig. 1, Art. 46.)

3. Where the intersection is *inclined* to the plane of the picture, the vanishing lines of the intersecting planes will meet at a point which is the vanishing point of their line of intersection. (Art. 145.) A future problem (Art. 182) will show the process of finding the vanishing line of a plane to which all lines vanishing in this point are perpendicular. That plane will be the plane of measure: and its vanishing line, graduated as above directed, (Art. 82, 88,) will show and express in its graduations (along the interval between the points where it is cut by the two other vanishing lines) the angle made by the two intersecting planes with each other. Thus the plane of the circle *a b d e f g* (plate ii. fig. 3) is a plane of measure. It measures the angles *a u b*, *b u d*, *e u f*, *f u g*, &c. because it is perpendicular (Art. 166) to the planes that make those angles. Its vanishing line is Y Z, on which the two lines forming any one of those angles will be found to vanish. It here measures the angle made by any two of four intersecting planes with each other. Their four vanishing lines meet at P, the vanishing point of *u* P, their common line of intersection, (Art. 145,) which is inclined to the plane of the picture. Out of

Painting. these four let us choose for examples two intersecting planes; the plane of $d\,r\,h$ vanishing in the line P Y; and the plane of $a\,r\,f$ vanishing in P Z. The vanishing line of the former cuts the vanishing line of the plane of measure in the point Y, which, if a graduation were completed on Y Z, would be marked 45°. The vanishing line of the latter cuts it at the point Z, which would be likewise marked 45°. In this manner 45° + 45°, or 90 degrees, would be found the original angle made by these two intersecting planes with each other.

Problem VII.

Prob. VII. *Given the vanishing line of a plane not perpendicular to the plane of the picture, to find the angles which any number of indefinite representations vanishing in that line make, either with the base of the plane to which they belong, or with each other; and to represent, as was done in Case II., any required portion of a line or angle belonging to a given plane. Also to represent, as was done in Case I., any point or line at a given distance from the spectator.*

Inclination to the base found. (168.) Let the given vanishing line be X M. (Plate iv. fig. 1.) If the indefinite representation be found to vanish in the centre D of X M, the angle made by it at the base has been already stated. (Art. 72.) Let it be required then to find the angle made by the indefinite representation t X with the base of the plane inclined to the picture, and vanishing in X M. Draw, parallel to X M through any point, as t, in the indefinite representation, the occasional base $t\,g$. Next, at the centre D (Art. 138) of the given vanishing line raise a perpendicular line equal to the direct distance. (Art. 27, 29, 131.) Join its furthest extremity R to the vanishing point X of the line t X. Lastly, to R X draw at the point t a parallel $t\,h$. The angle $g\,t\,h$ is the angle required. (Compare this with Art. 98.)

Inclination found with any other line in the same plane. (169.) If for greater convenience the perpendicular D R be drawn on the other side towards C, the result will be the same: only the parallel $t\,g$ drawn through t will be on a different side of the line $t\,g$. In other words, the original angle will be on the same side of the base with its representation. (Compare this with Art. 99.)

(170.) Let it be required further to find the original of the angle $k\,t$ M made by the indefinite representation t X with another line whose representation $t\,e$ vanishes in the point M. To the same construction as above only add the line R M to join the furthest extremity of the perpendicular at D with the vanishing point of the new line. The angle X R M will be the original of the angle X t M, and will be expressed by the *sum* of the degrees at X and M, according to the graduation of the given vanishing line. (Art. 131.)

In like manner if $t\,s$ be the representation of a line making an angle with t X, let $t\,s$ be produced to its vanishing point q, and the *difference* of the graduation on D q from that on D X will express in degrees, minutes, &c. the angle sought.

To represent 1. A given angle; and in any required divisions. (171.) Let it be next required to represent any angle, or any intended portion of an angle. This process is the converse of the preceding. Begin by constructing at t the intended original angle on the base $g\,t$. A parallel to $t\,h$ through R will cut X M in X, the vanishing point of the required representation. Then any original angle constructed at R with R X, such as X R q, X R M, &c., will give vanishing points, as q, M, &c., for the lines which contain the representation of that angle. (Art. 84.) (Compare this with Art. 108.)

Of Outline.

2. A given line; and in any required divisions. (172.) Another query of Prob. VII. is, how to represent a line of any given length. Find (Art. 56, 58, 99) the scale for the required representation, according to Case I., at the alleged distance of some point, as t, where the line in question crosses the occasional base. Mark off on the base, from the point t, the intended length, say $t\,g$. From X, measure on the side nearest D R, along the vanishing line, the interval X W equal to X R. Then from W (being the dividing point thus found, Art. 85) a line drawn to g will cut t X in the point K, and give the portion $t\,k$ for the representation of $t\,g$ required.

Here, as in the instance recently mentioned, (Art. 169,) it may often be convenient to erect D R on the other side in the direction of C.

The learner will have observed that all the above operations of Prob. VII. are perfectly analogous (Art. 131, 132, 133) to those of Prob. IV and V. (Art. 90 to 95; 98 to 102.)

(173.) A further analogy remains for our notice in the process of dividing, according to any given ratio, the representation $t\,k$.

Let it be required to divide $t\,k$, so as to represent three equal parts.* Trisect accordingly the portion $t\,g$, on the base. Lines from W, the dividing point, to the points of trisection will cut $t\,k$ in the corresponding points of representation. (Compare Art. 106.)

A similar observation here to one in Prob. V may be made. It is not always necessary to draw the base through the given point. Let the given point be z. A line from W through z will meet the base $t\,g$ in j. Then measured from j, let the portion required be $j\,g$. Draw W g as before. $z\,k$ will be the representation of $j\,g$. (Compare Art. 100.)

Similarity between this problem and Prob. IV and V. Also we may find it useful to remark, that each of the methods of working introduced in Case II., besides the one we have thought proper to select, will be found available in the present problem. For instance, let the angle $g\,t\,h$ be constructed at t on the base by means of a parallel to R X drawn through t. A line R h will cut off from t X the representation required, namely, the portion $t\,k$. (Art. 102.) See also the other analogous modes of operation. (Art. 101, 103 to 106, and 113.)

Similarity between this and Prob. II. (174.) Respecting the last particular required in this problem, namely, *to represent at a given distance* from the spectator *any point or line in the given plane*; we need only remark, that the operation is exactly similar to that which in Prob. II. has been described and exemplified at large. If in fig. 1, plate v. the point C be no longer viewed as the centre of the picture, but be reckoned as the centre of some vanishing line under Case III., the same methods of calculation, the same forms of construction, the same adaptation of scales originating in the measurement (Art. 56, 57, 58) of the principal distance, and set off on bases in the plane of the

* The converse of this may be thus stated. Given any divided representation, as $t\,k$, to find the original ratio of the parts to the whole original line. For this purpose find the dividing point W; from whence lines drawn to the base through the representative divisions of $t\,k$ will give $t\,j$, $t\,g$, &c. and show the original proportions. This is a serviceable proposition (supposing a picture completed) for estimating the comparative magnitude of objects delineated, and for ascertaining their approach in this respect to nature, probability, and reality.

Painting.

picture, will be found available. To show, however, the perfect accordance of the operation under Case III. with that under Case I.: let E G (plate iii. fig. 1) be some portion of the base or occasional base of a plain vanishing in H L, the horizontal line. Let E G be also an equal portion (Art. 33) of the base or occasional base of a plane, of whose vanishing line W is the centre. Draw E W and G W, E C and G C. It is evident that the parallels to E G, terminated by the lines vanishing at C and W, will express all the possible apparent lengths of E G upon either plane, at any distance from the spectator. (Art. 77.) To E G draw parallels at I, B, and A. It will be seen that E G, at the distance of the bottom of the box, is reduced in its apparent length to *x a*; which is equal to and in the same plane with (parallel to the picture) the parallel line at I. A little further off, at the back of the box, E G is reduced to *y* &; which is equal to and in the same plane with (parallel to the picture) the parallel line at B. Further off still, E G is reduced to *u t*; which is equal to and in the same plane with (parallel to the picture) the parallel line at A. The proportions, therefore, of E G, will be represented at the distances of *u*, *y*, and *x*, in the plane E *t*, (inclined to the picture,) after the same method as in the plane A G (perpendicular to the picture) they are represented at the points A, B, and I, of equal distance with *u*, *y*, and *x*.

(175.) It seems almost too obvious to be added, that in cases where the point W is not easily accessible, the proportions of such lines as *u t*, *y* &, and *x a*, may be found by perpendiculars from each extremity of the parallels at A, B, and I. These perpendicular lines will cut the indefinite representation E W in the points *x*, *y*, and *u*; and the indefinite representation G W in the points *t*, &, and *a*; thus obtaining *u t*, *y* &, and *x a*, for the proportions required.

Examples for Prob. VII. in the three varieties of Case III.

(176.) To give some examples in the three varieties of Case III. The plane *a* V *h*, (plate iii. fig. 1,) vanishing in V R, has its base *a b* or *d h* parallel to the horizontal line. The representation *a d*, therefore, in that plane, showing the side of a square, is obtained by a line through *h* from the dividing point R, (Art. 133,) cutting *a* V (which, representing a perpendicular to the base, vanishes in V, Art. 72) in the point *a*. Or, if *a b* be used as a base, raise a perpendicular at *a*, equal to *a b*, and another at V equal to the direct distance. (Art. 128.) The line joining their furthest extremities will cut *a* V in the point *d*, and give *a d* for the required side of the square. Another example is presented in the figure of a double cross. (Plate x. fig. 1, No. 3.) Its upper and under surfaces (whose bases are parallel to the horizontal line) are in planes, which being inclined 70 degrees to the plane of the picture, and therefore 20 degrees to the plane of the horizon, (Art. 152,) vanish in a line drawn through U^{20} parallel to the horizontal line. Its right-hand and left-hand surfaces are situated in planes parallel to the station plane, and therefore belong to Case II., being perpendicular to the picture. They vanish in the station line. Their base *j k* is accordingly drawn parallel to their vanishing line. (Art. 64.) Its other surfaces being inclined 20 degrees to the plane of the picture, and therefore 70 degrees to the horizon, vanish in a line B M, through M^{70} parallel to the horizontal line. The plane of the bottom of the cart (No. 1.) has also its base parallel to H L. This plane is inclined 55 degrees to the picture, and therefore 35 degrees to the horizon and its vanishing line Accordingly, P D passes perpendicularly through the point D 35 on the station line. (Art. 152.)

1. Bases parallel to the horizontal line.

The planes of *h g f i* and of *m l k n* also have their bases parallel to H L. The former of these planes being inclined 35° to the picture, and therefore 55° to the horizon, vanishes in G I, drawn through M^{55}. The latter making, with the picture and with the horizon, the same degrees of inclination as the former, vanishes of course in the same line G I.

Of Outline

Of the second variety of Case III., an example will be seen (plate ii. fig. 1) in lines representing two sides of a box, *viz. t i q m*, and *o s v x*, together with the two corresponding sides of the lid at *i e* and *s u*, belonging to two parallel planes. Both planes vanish in the line M H K, (Art. 65,) parallel to the station line. Likewise the vanishing line A M, (plate iv. fig. 1,) in which vanishes the plane of *a s o x*, containing the lines S M and *s* A; and the plane of *b e i f*, containing the lines *t* M and *e* A, is parallel to the station line. Again, in plate viii. fig. 1, the plane of each front piece, as A of the staircase, will vanish in a line parallel to the station line. The representations, therefore, of the perpendiculars to each base, will vanish in the several centres (Art. 72) of the 36 vanishing lines that cross the horizontal line at right angles in the points X, XX, XXX, &c. (Art. 152, 153.) It will be seen, however, that two of the 36 planes vanish in the station line, and consequently the treatment of them belongs to Case II.

2. Bases parallel to the station line.

For the third variety of Case III., examples are given in plates ii., iv., v., and x. The vanishing line M L (plate ii. fig. 1) of the plane on which is represented the square of the lid *i e u s*, is, as will be immediately evident upon inspection, neither parallel to H L nor to C W. Again, in plate iv. fig. 1, the vanishing line X M of the plane of the square *k t e s* is of the same description. To obtain the side *e t*, take a portion *e* N of the base equal to *l b* or *b c*. Next mark off from the point M on the vanishing line, the interval M Y equal to M R. From the dividing point Y thus found, a line through N will cut *t* M in *t*. Otherwise a diagonal drawn from *q* (the point of interseetion made by R *q* in bisecting (Art. 117) the angle M R X) will give the point *t*. It will be seen that there may be cut off from *t* M, as was done from *t* X, any number of portions bearing any given ratio to each other. Lines from Y to the divisions N, n^2, n^3, on the base, will give the representation *t e*, *e r*, and *r p*, of this division. In plate v. fig. 2, the vanishing line V M being that of the plane of *h k w i*, expresses in its graduations the angle made by *i h* with *i w*, *viz.* 36° + 54° = 90°. Here the representation *i w* is found (in the same way as heretofore exemplified) by the portion of a base, as *i n*, equal to the apparent length of *a z* according to its appropriate scale at the distance of the point *f*. Lastly, in plate x. fig. 1, No. 2. a representation of the line *s* T or *s* W, (being the proportionate length, from stem to stern, of the trigate,) is required to be cut off from the line representing an indefinite perpendicular *s* B to the base. The operation is the same as hitherto: either that of raising the direct distance a perpendicular at B; or of marking off the interval measured from the right or left of B for a dividing point. A line to T from the furthest extremity of the perpendicular, or to W from the point marked 45° (Art. 134) on the vanishing line E B, will give *s* V to represent the length of the vessel.

3 Bases neither parallel to the horizontal nor to the station line.

Observe also, in another part of the field of vision, the representation of the wheels of a cart. The planes of each wheel are not parallel to one another, and must therefore be represented with separate vanishing lines.

Painting. Of Outline.

To one of them belongs D S, the vanishing line of the near wheel. The other vanishing line D S^1, with S^1 for its centre, in the direction of D F, is the vanishing line of the off-wheel. On the felloe, or circumference of the latter, one circle will be observed to vanish in the plane of the spectator's eye, and therefore must exhibit the appearance of a straight line. (Art. 137.)

Mechanism of wheel-carriages affords examples for this variety of Case III.

(177.) Respecting the former, although it would, in a view of the real object, be entirely concealed by the side and body of the vehicle, we have nevertheless introduced an outline of it for the sake of one or two somewhat trite observations, but necessary to our purpose. In the construction of wheel-carriages, it is a well-known principle, for the sake of safe conveyance, in cases where the unevenness of the ground throws the weight on one side, and consequently on the wheel or wheels attached to that side, so to arrange the spokes, as that each of them in its turn, when its outer extremity reaches the ground, should become a sufficient prop and support. The superincumbent weight would lose its balance, and would overturn the whole, if this prop or spoke were not placed sufficiently under it, outside of the line of gravitation, as far as conveniently may be practicable; a precaution not necessary towards the inside, or space between the wheels, because the weight on that side is shared by the other wheel. The precautionary contrivance for the aforenamed purpose is both effectual and simple. The direction of the spokes in converging from the periphery to the axis, instead of being perpendicular to the line of the axle-tree, is so managed, that each of them, on coming to the ground, may make outwards, a more or less acute angle with the line of axis; the better to sustain and balance the load above, whenever, from the inequalities of the road, or from whatever cause, it leans upon one side. In short, the axis is that of a cone formed by the revolution of the spokes, the apex of which cone lies in the nave or centre-piece of each wheel.

Our outline in plate x. fig. 1, No. I. will perhaps be more intelligible by reason of the above remark. The twelve points in the circumference of the wheel are obtained in a very similar manner to those for the 12 lamps in Prob. V. The parallels on each side of X Z have their representations vanishing in S, the centre of the vanishing line of the off-wheel. (Compare Art. 113, 114, and 115, with Art. 128, 129.) From these points thus obtained, lines must be drawn to some point in the axis, (at the distance sometimes of a foot from the linch-pin,) for the top of the cone above described. These lines (see the dotted lines in the figure) represent the position of the twelve spokes. The eye of the draughtsman will also quickly perceive that, besides the inclination of the spokes, tending, as was remarked, to equilibrium and steady conveyance, the axis also of each wheel is made to favour the same object, by having a certain degree of inclination downwards; and the wheel is made broad with two, and sometimes three iron plates or felloes, one beside the other, forming the frustum of a cone, with the same axis as that of the spokes, but tapering outwards in an opposite direction, and with its apex at a distance of some yards.

Further helps adapted both to Cases II. and III. for the projection of circles in perspective.

(178.) This may be a proper place to introduce some helps generally applicable in both Cases II. and III. to the representation of circles, or arcs of circles, and contributing as well to accuracy as facility of execution. The following method requires no more than a fourth part, or quadrant, to be drawn at the base. Having chosen some point, as v, (plate x. fig. 1, No. I.) in the perspective plane for the centre of your representation, draw through that point the representation of a perpendicular to the base. It will vanish at the centre S of the vanishing line. (Art. 72.) Produce it in the opposite direction to meet an occasional base at Z, sufficiently distant from v, to admit room for the construction. Raise at Z a perpendicular on the side furthest from S. From the furthest extremity Δ of the perpendicular at S, (which, in the present case, equals the direct distance,) draw through v, a line cutting Z X in X. X will be the point for the right angle of a quadrant one side of which, X Z, is perpendicular to the base.

Let it now be required to give the representation $r\ w\ b\ a$ of the arc Z Y. For this purpose, suppose Z Y divided into any number of equal parts, say three. The lines X 3 and X 6 forming those divisions, will cut the base at the points 3 and 6. Draw lines, through v, from these points. Also draw through v, a parallel $a\ u$ to the base. Thus will be represented the three intended angles trisecting the quadrant, *viz.*

$$\left.\begin{matrix} Z\ X\ 3 \\ 3\ X\ 6 \\ 6\ X\ Y \end{matrix}\right\} \text{represented by} \left\{\begin{matrix} Z\ v\ 3. \\ 3\ v\ 6. \\ 6\ v\ 9. \end{matrix}\right.$$

Extreme nicety and minuteness attainable if required.

(179.) If, for the sake of minuter accuracy, a greater number of divisions be called for in the arc Z Y; suppose it divided, as the quadrant at B, (plate v. fig. 2,) into nine parts, each of which will, of course, be 10 degrees. Lines, it will be seen, here again must be drawn cutting the base at the points 1, 2, 3, 4, 5, 6, &c. If still greater detail be desired, which in large works, in scene-painting, for example, may be occasionally necessary; let a quadrant be drawn of any magnitude having the same centre, B or X, (plate x.) as the other, and having one side perpendicular, as B Q, (plate v. fig. 2,) to the base at O. On the arc Q D, thus constructed, it is evident that any number of degrees, minutes, or seconds may be distinctly defined: and that lines, drawn to B, from the graduations on the arc, (as those of ten degrees between 40 and 50,) will cut the base in the manner here shown, on the interval between numbers 4 and 5, in corresponding graduations. This done, the operator needs only proceed as has been directed.

Usual method of working when a base cannot be drawn of sufficient length.

(180.) Frequently, however, it happens that there is want of room, that the base is very limited, that it either is inaccessible, or has been continued to the utmost margin of the work, and cannot contain further graduations. This difficulty is easily surmounted. Join by a line, X v, (plate x. fig. 1, No. I.) the centre of the original to the centre of the representation. Draw to this line any where without the arc X Y a parallel, as q 9, crossing the base at B. Make q B and B m together equal to the interval X v, between the centres v and X; that is, make q B equal to X e, and make B m equal to $e\ v$. Finally, join $q\ m$. We are now prepared for the difficulty mentioned. Suppose even every other part of the base inaccessible, and it be required to represent indefinitely the line X q, forming the angle Z X q. Make B 9 equal to B m. The representation 9 u drawn through v, will give the angle 9 v Z to represent the angle q X Z.

Suppose further, a given number of divisions of the angle 6 X q be required. Let the lines, as X q^8, X q^7, forming those divisions, be produced to meet q B 9. Through the points 9^8 and 9^7 draw parallels to $m\ q$.

Painting. Observe the points m^8 and m^7, where those parallels cut the base. Next, cut off from B 9, a portion B 7 equal to B m^7, and another portion B 8, equal to B m^8. Lastly, from the points 7 and 8, lines through v will give the representations 9 v 8, 8 v 7, and 7 v 6, of the three angles contained in 6 X q. A similar proceeding appears in plate v. fig. 2. It will be of use to the learner to trace the resemblance. A line B O indefinitely represented by O D; W B drawn through C and B to determine the two centres: l c and c m two radii parallel to the base: r n parallel to and equal to F B. Y r equal to F C: k x parallel to n Y: r a made equal to r x: and lastly, a c drawn through c from a, making the representation a c m of the angle k B 9. The graduations on the vanishing line contribute much to the accuracy of the work. From the point marked 1, for instance, on the base, an indefinite representation is drawn to 10° on the vanishing line. From 2 another to the vanishing point marked 20°. From 3, a third to that marked 30°, &c. all passing through c. The base points to the left of O or of Z (plate v. or x.) being determined as above; those to the right, O 1, O 2, O 3, O 4, &c. or Z 3, Z 6, &c. are easily obtained by merely transferring these intervals along the base, from one side of the perpendicular O B or Z X to the other.

Method when a vanishing line cannot be drawn of sufficient length. (181.) We have only as yet found certain angles at the centre of the circle. Its circumference remains to be accounted for. In this part of the process we are to consider our perspective representation of a circle as that of a regular polygon, approaching nearer to the form of a circle the greater the number of its sides. Let us conceive this polygon divided into equal and similar triangles, (one triangle for each side,) of which the angles we have just been representing (Art. 180) are situated at the vertices. The angle at the vertex in any one triangle subtracted from 180°, leaves for remainder the amount of the angles adjacent to its remaining side at the circumference of the circle. Halve this amount, and we have the angle made by each side of the polygon with the adjacent radius. Thus, let u v a (plate x. fig. 1, No 1.) be fixed upon for the diameter of the projected circle. Draw lines in the quadrant Z Y joining the points of its trisection. These lines complete three triangles, each of which at its vertex X contains an angle of 30 degrees. $\frac{180 - 30}{2}$ = 75 degrees, *viz.* the amount of the angle made by each side of the hexagon with its adjacent radius. The radius b v representing with the base (or with a v) an angle of 30° will vanish at the point marked 60. (Art. 94.) Reckoning therefore from 60° as from zero (Art. 111) along the vanishing line, we perceive that a line to make 75° with b v must vanish at the point marked 15° beyond the centre S. From the point therefore marked 15 on the vanishing line D S towards Q let a dividing line be drawn through a. It will cut the representation 6 v in b. Again, the line w v vanishes at the point marked 30. A line, therefore, to represent 75° with w v must vanish at the point marked 45°. From 45° accordingly, a dividing line through b will cut 3 v in w. Thirdly, the line Z v vanishes in S, the centre of the vanishing line. A line therefore representing 75° with it, will vanish at the point marked 75°, from whence a dividing line through w will cut Z v in r. But the extremity r, as well as &, its opposite, will be always best obtained by a dividing line through a, or u, from the point marked 45° on either side of the centres of the vanishing line.* (Art. 134.)

Of Outline.

Suppose then our quadrant a b w r to be a satisfactory projection of Z Y. Lines representing perpendiculars to the base, (or to a u,) and drawn accordingly to S from the points b and w, will cut 3 t 30 in s, and 6 j 60 in d. And parallels to the base (or to a u) from b and w, will again cut the same lines in t and j; thus leaving a fourth part only of the representation to be completed. This completion will be performed either by parallels to the base through d and s, or by representations of perpendiculars to it (or to a u) drawn through t and j.

Problem VIII.

Prob. VIII. *Given on the perspective plane any point; to find a vanishing line from which all lines drawn to that point shall represent perpendiculars to whatever plane vanishes in that line. Also given any vanishing line; to find the angle made by the plane it belongs to, either with the picture, or with any other plane, whether that other plane be parallel to the picture, or have a given vanishing line.*

Vanishing line found of the plane of measure. (182.) Let C (plate xi. fig. 1) be the centre of the picture, and P the given point. Join P C, and at C raise to C P a perpendicular C D equal to the principal distance. At D construct upon D P the right angle P D M, and produce P C to meet D M at M. In other words, find a third proportional C M (Art. 139) which shall be to C D as C D is to C P. A perpendicular through M to M P will be the vanishing line required. M will be its centre, (Art. 75, 138,) and M C its central distance. (Art. 24, 25, 26.)

Corollary. (183.) *Cor.* It is evident that if the point M had been given instead of the point P, that the foregoing operation would have procured P for the centre, and C P for the central distance of the required vanishing line of a plane, to which all lines drawn from the point M would represent perpendiculars. (Art. 139.)

Angles found of inclination made by original planes with the picture. (184.) To perform the next part of the problem, a certain property of the given vanishing line must be ascertained. If the given vanishing line pass through the centre of the picture, (Art. 34,) the angle which the plane it belongs to makes with the picture, has, throughout the whole of Case II., been already stated.

But if the given vanishing line pass through any other point as its centre, let B (plate x. fig. 1, No. 2.)

---

* An isosceles triangle of this kind with 10° at its vertex, must have 85° for each of its other angles. Consequently, any line, to represent an angle of 85° with the line a c (plate v. fig 2) vanishing at 80°, must vanish at 5° on that side of D nearest to M, and the other dividing points will be found in the following order:

A line to make 85° with another line vanishing at	70°	must vanish at the point marked	15°.
	60		25.
	50		35.
	40		45.
	30		55.
	20		65.
	10		75.

If this sort of calculation be considered tedious, there is always the alternative, whenever the perpendicular at D, as D W, (plate v. fig. 1.) or at S, as S Δ, (plate x. fig. 1, No. 1.) namely, the principal, or, as the case may be, direct distance, is accessible; of drawing lines to such points as R W V A, &c., in the original arc below the base, which lines will cut the several indefinite representations in corresponding points, r, w, b, a, &c. (Art. 99, 100, 113.)

Painting.

be that centre, and E B the given line. It is required to find the angle of inclination made with the plane of the picture by the plane vanishing in E B. Having found C B the central distance, (Art. 138,) raise at C on either side of C B a perpendicular A C equal to the principal distance. Complete the triangle (Art. 25) by joining A B. This will be the hypothenuse or direct distance drawn from the extreme point of the central to the extreme point of the principal distance. The angle A B C will be the angle required, namely, the angle of inclination made with the plane of the picture by any plane vanishing in E B. (Art. 152.) It is always to be found at the centre of the vanishing line. It is here 60°, being the complement to 30°, the angle marked on the central distance at B.

(185.) The examples are numerous in which this operation may be repeated throughout the three varieties of Case III. It has been thought convenient to collect them in the subjoined Table, placing them in the order of the plates, and leaving the practitioner to class the different planes for himself according to the direction of their bases or vanishing lines.

Examples.

Plate.	Fig.	Given the centre	of the vanishing line,	to find the angle of inclination made to the picture by the plane of	and its parallels.
ii.	1.	E	M L	*i e u s*	
...	..	H	M K	*i q m t*	
.....		L		*q v x m*	
iii.	1.	V	V R	*d a b h*	
.....		W		E *u t* G	
.....		Z		*d n l h*	
iv.	1.	D	X M	*s k t e*	
.....		X	F E	*a s e b*	
.....		V	A M	*h e i f*	
.....			X A	*s* A *e*	
v.	2.	D	V M	*h k w i*	
.....		V		*e x s a*	
.....		L	M L	*a s i f*	
vi.	3.	*a*	*h j*	*y* &	
.....		D	*q k*	*u s t v*	
vii.	1.	30	F 1	*r p c*	
x.	1. No.1.	D	P D	*o h i p*	
.....		Q	Q F	*o m n p*	
.....		S^2	S^2 D	the wheel at *l*.	
.....			G D	*f k n*	
.....			D I	*g l m*	
.....	No. 2.	K^{60}	K^{60} 1	*b d*	

Angles found when made by any two intersecting original planes with each other.

(186.) Lastly, it is required in Prob. VIII. to ascertain the *angle made with each other by any two original intersecting planes* of which one vanishing line at least is given. We include here right angles as well as angles of inclination, or *acute* angles. (Art. 166.) There are four divisions under which may be classed all pairs of intersecting planes, *viz.*

1. Any two planes, *one of which* being a plane under Case I., *has no vanishing line.*

2. Any two planes with *vanishing lines* (and, consequently, bases, Art. 64) *parallel* to each other.

3. Any two planes with *vanishing lines perpendicular* to each other, and one or both of them passing through the centre of the picture.

4. Any two planes with vanishing lines that *meet and intersect in all other ways.*

Four classes of intersecting original planes.

1. The first class.

(187.) 1. Respecting the first mentioned of these classes the rule has been already given, (Art. 151,) that the angle made by one plane with the other is the same as that made by one plane with the plane of the picture. Consult for practical illustration,

Plate. Fig.

iii.	1.	*d a b h*	*e d h g*	C V L		
.....		*e m f g*	*e d h g*	90°		
.....		*g h i f*	*e d h g*	90°		
.....		*d n l h*	*e d h g*	C Z L		
.....		*j p r k*	*p o s r*	90°		
v.	1.	*g i t h*	*g a f h*	90°		
vi.	3.	*y r*	*c o*	C D F		
ix.	5.	*s i l e*	*s w*	90°.		

where the plane | makes with the plane of the picture and | with the plane | the same angle, *viz.*

Of Outline.

(188.) 2. Respecting the second class of these intersecting planes it has been stated (Art. 148) that the sum or difference of the angles marked on the central distances of their two vanishing lines will express the angle required; namely, the angle contained between their two direct distances; or in case one only of them has a central distance, then the angle expressed is between the direct distance of that one and the principal distance. We need only, therefore, refer to some examples for practice.

2. The second

Pl. Fig.

ii.	1.	*q v x m*	M K	*t i q m*	H W L
iii.	1.	*d n l h*	V R	*d a b h*	V L Z
....		*d n l h*	H L	*d z i h*	C L Z
....		E *u t* G	H L	A G	C L W
iv.	1.	*a s e b*	A M	*b e i f*	X P V
v.	2.	*e x s a*	M L	*a s i f*	V P L
vi.	3.	*y* &	*q k*	*y r*	*a* F D
...		*u s t v*	W F	*n t*	D F C
vii.	1.	*r p c*	B D	*r q*	C B 30
x.	1. No. 2.	*s b h* V	A C	*s* C W	C A B
..	1. No. 3.	*a g h b*	BM^{70}	*a b d e*	D H M^{70}

The given vanishing line of the plane of | is parallel to the vanishing line | of the plane | and the angle found to be made by the planes with each other is

To which may be added the numerous examples in plate viii., where the plane of the front piece of each step makes an angle of ten degrees with that of the adjacent step: ten degrees being the difference between the central distances of their two vanishing lines; the vanishing lines, moreover, of all being parallel, and therefore of this class; and S C, their occasional base, common to all.

(189.) 3. Respecting the third class of intersecting original planes, it has been shown, that where one vanishing line contains the central distance of another, the two planes to which they belong will be perpendicular to each other. (Art. 153.)

3. Third class of intersecting planes.

(190.) And if neither of them have a central distance, *i. e.* if both of them pass through the centre of the picture, the two planes will make each with each the same angle as their respective vanishing lines do with each other. (Art. 147, 167, No. 2.) For illustration of this last particular, see plate vii. fig. 1, where B C O is the angle made by the plane *a l t b* with the station plane: and O C P the angle made by it with the horizon. Also in plate x. fig. 1, No. 2. B C D the angle made by the plane of the ship's keel with the station plane; and B C H the angle made by it with the horizon.

(191.) And for examples of cases where one vanishing line contains the central distance of another, see the plane *r p c* (plate vii. fig. 1) of a window shutter. It is perpendicular to the horizon, since its central distance C 30 is contained in the horizontal line. Also see plate x., where all the front pieces of the steps are perpendicular to the horizon, since the horizontal line contains all their central distances. See further as follows.

Painting.

Plate. Fig.	The plane	is perpendicular to the plane	whose vanishing line contains the central distance
ii. 1.	$m t i q$	$t o x m$	C H
....	$m q v x$	$t o x m$	C L
.. 3.	b P g	e P j	C P
iii. 1.	$a b f x$	$g h i f$	C Z
iv. 1.	$a s e b$	$b a x f$	C X
....	$b e i f$	$b a x f$	C V
v. 2.	$a e x s$	$a e d f$	C V
....	$a s i f$	$a e d f$	C L
vi. 3.	y &	$e g$	C a
....	$y r$	$e g$	C D
x. 1. No. 3.	$a g h b$	$b h i d$	C U^{20}
....	$a b c d$	$b h i d$	C M^{70}.

4. Fourth class of intersecting planes.

(192.) 4. The fourth class, including every other kind of mutual intersection by two original planes, remains for our notice. Let, then, the two given vanishing lines be P H (plate xi. fig. 1) and P X, and let them be produced till they meet at P. It is required to find the original angle made by any plane vanishing in P H with another plane vanishing in P X. Having found the point P, next find the vanishing line, H X, (Prob. VII. Art. 182,) of all planes to which lines drawn from P will represent perpendiculars. Produce the two vanishing lines to meet H X at H and X. H X will be the vanishing line of the plane of measure. (Art 146, 182.) At M, its centre, raise M W, its direct distance, from the furthest extremity of which draw two lines to the points H and X. Between these two lines will be contained at W the original angle required, namely, the angle H W X made by any plane vanishing in H P, with any plane vanishing in X P. In like manner, if the vanishing line P M, or P A, be chosen for meeting H P at P, H W M, or H W A, will be the original angles of inclination sought; *viz.* H W M the inclination of any plane vanishing in H P with any plane vanishing in W P; and H W A the inclination of any plane likewise vanishing in H P with any plane vanishing in A P. A few examples may suffice. As in

Pl. Fig.				
ii. 1.	M L	is the vanishing line of	K M and K L	
iv. 1.	A M	the plane of measure to	X A ..	X M
x. 1. No. 1.	G I	two intersecting planes	D G ..	D I
.... No. 1.	G I	that vanish in	D S ..	DS^2.

Problem IX.

Prob. IX.

Given any vanishing point, and the angle made with the picture by any plane which contains the line vanishing in that point: to find the vanishing line of that plane; and to find the vanishing point of all lines perpendicular to that plane.

(193.) We have observed (note to Art. 145) that in order to determine any vanishing line, two points, at least, must be found or given within that line. In the present problem one of these two points within it is given. The other, which we must proceed to find, is that point within it called its centre. (Art. 71, 138.)

If the given point *be that centre itself* of the vanishing line, it is obvious that no further operation is necessary than to draw, through the given point, a perpendicular to the central distance; which perpendicular will be the vanishing line required. For example, let the given point be M, (plate xi. fig. 1,) the centre of the vanishing line H X. Nothing further is needed than a perpendicular to M C through M, in order to find that vanishing line. Of Outline

Vanishing line found of a plane making with the picture a given angle.

(194.) But if the given point be some other, as A, *apart from the centre*, let any radius, as C K, be drawn to the circle of vision: and at its extremity (the extremity of the principal distance) let the complement of the given angle (Art. 152) be constructed, *viz.* at K. At C let a perpendicular be raised to K C; and let that perpendicular together with the leg of the angle at K be produced till they meet at I. C I will be the central distance of the required vanishing line. With C I, therefore, for radius, describe the arc I M, and from the given point A, draw the tangent A M, or A H, (see our *Treatise* on GEOMETRY, book iv. prob. xvi. p. 328,) which will be the required vanishing line; with C M = C I for its central distance, and M D, or M W, for its direct distance. (Art. 26.)

(195.) Next, *to find the vanishing point of all lines perpendicular to a plane vanishing in any given line.* If the given vanishing line pass through the centre of the picture, the lines in question will have no vanishing point but will be parallel to the picture, and must be drawn perpendicular to the base. For example, $m q$, $t i$, $o s$, and $x v$, (plate ii. fig. 1,) representing perpendiculars to a plane vanishing in H L, are drawn in a direction perpendicular to the base $g z$, since their originals are parallel to the picture. Other examples will be found everywhere in Case II.

Vanishing point found of all perpendiculars to a given

(196.) But if the given vanishing line be out of the centre of the picture, as H X, (plate xi. fig. 1,) find its central distance C M. (Art. 138.) On either side of C M draw C D, or C d, (the principal distance,) parallel to the given vanishing line. Make at D with M D a right angle, the leg of which produced will meet M C (also produced) at the point P. In other words, find C P, (a third proportional,) which shall be to C D as C D is to C M. (Art. 139.) P will be the point required. Had the point Q been the given point in any vanishing line of which P should be found to be centre, a similar operation to the foregoing would discover M as the vanishing point of all perpendiculars to any plane vanishing in P Q. (Art. 154.)

Cor. 1.

(197.) *Cor.* 1. The line W P, if graduated as the vanishing line of a plane of measure, (Art. 146,) will contain the central distances; and will measure the angles made by any planes with each other whose vanishing lines cross it like H X and Q P at right angles. (Art. 148, 153.)

Cor. 2

(198.) *Cor.* 2. Should the centres only be given of the vanishing lines of two original planes; or should the angles only be given made by each plane with the plane of the picture, the angle made by the two original intersecting planes with each other may be found. For,

If the vanishing lines *are parallel* to each other, a line joining their centres will express the angle made with each other by the intersecting planes. Thus, (plate xi. fig. 1,) the graduation of M P expresses the angle made by the plane vanishing in H A with the plane vanishing in P Q. Or, find the central distances (Art. 148) by means of the angle each plane makes with the picture. And, on the other hand,

If the vanishing lines *intersect* each other, and the points B and E be their given centres: join B C and E C, to which, at the points B and E, raise perpendiculars H B and A E. These will be the vanishing lines required, and being produced, will meet at P. Then by Prob. VII. (Art. 182) find the vanishing line H X

Painting.

of the measuring plane. The angle H W A will be the angle made by the one intersecting plane with the other; or supposing only the angles given made by each original plane with the picture, find (Art. 148) their two central distances, and proceed as before.

Cor. 3.

(199.) *Cor.* 3. Given the two vanishing points of any two lines that meet each other; to find a third line which shall represent a perpendicular to both the former at the point where they meet.

Join the two vanishing points. The line so drawn is the vanishing line of a plane containing the given two lines. (Note to Art. 145.) If it pass through the centre of the picture, let fall a perpendicular to it from the point where they meet. This will be the perpendicular sought.

But if the vanishing line of the plane of the given two lines does not pass through the centre of the picture; find (Art. 195) the vanishing point of all perpendiculars to any plane vanishing in that line. From that point so found draw a straight line to the given point where the two lines meet. This will represent the required line perpendicular to them both. Thus to *c a* and *a b*, vanishing in the line N O, (plate x. fig. 1, No. 4.) a perpendicular will be represented by *a d*, a third line drawn from the point M^{55}.

Cor. 4.

(200.) *Cor.* 4. All lines perpendicular to any plane whose vanishing line passes through the principal point, are parallel to the plane of the picture.

For they have no vanishing point (Cor. 3. Art. 199) and must be therefore parallel to the perspective plane, as the planes are to which they belong. (Art. 67.)

PROBLEM X.

Prob. X.

Given the angle made by any two planes with each other, and the angle made by one of them with the plane of the picture, and given the vanishing point of their line of intersection; to find their respective vanishing lines. Also given the vanishing line of any plane; to find the vanishing lines of any number of planes perpendicular to it, and making any given angle with each other.

1. The two vanishing lines found when the line of intersection is *parallel* to the picture;

(201.) When the line of intersection is *parallel* to the perspective plane, and has therefore no vanishing point, the two vanishing lines of the two intersecting planes will be parallel to it, and to each other; (Art. 143;) and the angle made by the two planes with each other will determine, as already stated in the last problem, the interval between their vanishing lines, *viz.* their two central distances. (Art. 197.)

But should only one of these two intersecting planes have a vanishing line, the angle made by them with each other will determine, as stated in Problem VIII., (compare Art. 187 with Art. 142,) the position of the vanishing line parallel to the line of intersection.

2. Found when the intersection is *perpendicular* to the picture;

(202.) When the line of intersection is *perpendicular* to the perspective plane, the two intersecting planes are also perpendicular to the picture, and the angle made by them with each other will determine, as stated in Problem VIII., (Art. 189,) the direction of their vanishing lines.

(203.) If therefore in the present problem, the given vanishing point of the line of intersection be the centre of the picture, the two intersecting planes will belong to Case II., and the angle made by them with each other being also given, first draw one vanishing line in any required direction; and then construct upon it with the other, at the centre of the picture, the given angle.

Of Outline.

3. Found when the intersection is *inclined* to the picture.

(204.) But let any *other point*, as P, (plate xi. fig. 1, No. 5.) *not in the centre of the picture*, be given for the vanishing point of the line of intersection. And let the given angle made by the two planes with each other be fifty-five degrees. Also let the angle made by one of them with the picture be an angle of forty-four degrees. It is required to find the vanishing lines of the two planes.

First find H X, the vanishing line of the planes to which all straight lines from P will represent perpendiculars. (Prob. VIII. Art. 182.) Next, find the central distance, (Prob. IX. Art. 197,) and the vanishing line (containing the given point P) of a plane that makes the given angle C F G of 44 degrees, with the plane of the picture. Produce this vanishing line, as P F, to meet that of the plane of measure at X, and having drawn W X from the extremity of the direct distance, construct at W the given angle made by the two intersecting planes. Let X W M be the given angle. Join M P. M P and X P will be the two vanishing lines required.

In the same manner, if the given angle made by the two planes with each other were X W A, the two vanishing lines would be found to be P X and P A; or, if the given angle were X W H, the two vanishing lines would be found to be P X and P H.

Vanishing lines found of any number of planes perpendicular to a given plane.

(205.) The last desideratum of Prob. X. is, *to find the vanishing line of any number of original planes perpendicular to some one original plane* of which the vanishing line is given.

Let the given vanishing line be H X. Find P, the vanishing point of all lines perpendicular to the plane vanishing in H X. (Prob. IX. Art. 196.) Through P draw any number of vanishing lines to meet H X. These will be the vanishing lines required; namely, the vanishing lines of planes, which, whatever be the angle made by any one of them with another, are all of them perpendicular to the plane of which H X is the vanishing line.

Angle found made by any two of these planes with each other.

And if the vanishing line H X be graduated, (Art. 165.) the several angles made by the perpendicular planes with each other will be expressed by those graduations. Thus the angle

made by the plane vanishing in the line	H P, H P, M P	with the plane vanishing in the line	M P, A P, A P	would be found to be
	A P, M P, H P		X P, X P, X P	35°; 35+35=70°; 35; 55−35=20°; 55; 35+55=90°

Cor. 1. Peculiarity in the three vanishing lines of a cube or parallelopiped.

(206.) *Cor.* 1. In the triangle H X P, let either of the three points H, X, or P (since each of the three is the vanishing point of all lines perpendicular to a plane vanishing in the side opposite to each) be chosen as a vanishing point of lines of intersection. The side opposite that chosen point is the vanishing line of the plane of measure to all planes whose vanishing lines pass through that point. Consequently, any vanishing lines passing through that chosen vanishing point of intersection will be vanishing lines of planes perpendicular to the plane of measure, or to any plane vanishing in the line of the opposite side of the triangle. This opposite side (being produced sufficiently at each extremity, and graduated according as it belongs to Case II. or III.) will always express any angle made by the perpendicular planes with each other.

Cor. 2. Another peculiarity.

(207.) *Cor.* 2. Any one side, therefore, of the triangle just described, is the vanishing line of a plane of measure to all planes that vanish in the other two sides; (Art. 155;) and any one side contains the two vanishing points of all lines perpendicular to planes that vanish in either of the other sides. The side H X, for example, contains the vanishing points X and H; X that of all lines perpendicular to any plane vanishing in H P, and H the vanishing point of all lines perpendicular to any plane vanishing in X P. The same remark applies to the points X and P contained in the side X P, as well as to the points H and P contained in the side H P.

Cor. 3. Representation found of a plane that intersects (in a given line, and at a given angle) another original plane.

(208.) *Cor.* 3. Given the representation of a portion of any plane, to represent another plane making with it a given angle, and passing through a given line of intersection.

Let the given intersection be the line *n s* (plate xi. fig. 1, No. 5.) drawn upon a portion of a plane vanishing in M P; and let it be required to represent a portion of another plane passing through *n s*, and making an angle of 55° with the former plane. Produce *n s* to its vanishing point P in the given vanishing line. Then find H X, the vanishing line of the plane of measure, (Prob. VIII.) and proceed as directed above. (Art. 205.) The result will be X P, the vanishing line of the new plane. Lines drawn through *s* and *n* to any point or points in the vanishing line X P will give a portion of the plane required.

Cor. 4. Representation found of the angle made by two intersecting original planes with each other.

(209.) *Cor.* 4. To represent by two straight lines drawn on the two interseeting planes the angle which they make with each other. Choose, in the line of intersection, any point, as *o*, and having found by the foregoing operations (Art. 205, 208) the points M and X in the vanishing line of the plane of measure; draw lines through the point *o* from M and X. The originals of these lines belong to the plane vanishing in H X, to which *o* P must always represent a perpendicular. Consequently, *o t* and *o r*, representing perpendiculars to the line *n s* of intersection, (Art. 166,) will contain the representation of the angle M W X, made by the intersecting planes with each other. Observe that the angle *t o u* represents an *obtuse* angle; therefore the angle of inclination must be expressed by its complement *t o r*, formed by *o r*, vanishing in M, and *o t* vanishing in X. A flag-staff shows the direction of lines perpendicular to each plane.

Concluding observations on linear perspective.

(210.) Examples in each of the three varieties of Case III. might have been subjoined to the two foregoing problems. But we have already much exceeded our intended limits with respect to this essential branch or rather root of the art; (see note to Art. 2;) and we may now fairly regard the learner as being enough a proficient to discover throughout the several plates, with which we have endeavoured to familiarize him, illustrations to his purpose.

It may suffice to explain, cursorily, some constructions of outline, given in plate x. fig. 1. To draw the ship, No. 2: first find E B, the vanishing line of the plane of its deck* perpendicular to B K^{60}, (Art. 153,) the vanishing line of the plane of its keel,† which latter plane is here indefinitely represented by the triangle B *s* K^{60}. Observe that the point B is the vanishing point of all lines of intersection (Art. 167, No. 3.) made by planes vanishing in E B and in B K^{60}, *i. e.* of all lines extending, in nautical phrase, *fore and aft*; right ahead or astern. Also observe that the point K^{∞} is the vanishing point of the masts, and of all lines perpendicular to the deck; (Art. 195, 196;) and, on the other hand, B, the vanishing point of all lines perpendicular to planes vanishing in K I,* whose intersections with the plane of the deck extend from any given point starboard to its corresponding point on the larboard side, or *vice versâ*. These latter intersections will be parallel, in this example, to the perspective plane (Art. 195) and to the vanishing lines E B and K I of the two latter intersecting planes. (Art. 143, 148, No. 2. and Art. 167, No. 1.)

(211.) Draw parallel to E B, the base *a* W. At B raise perpendicularly the direct distance. (Art. 130.) Make *s* T or *s* W equal to the length from stem to stern. Having completed the three plans, (see notes to Art. 210,) make *s z* equal to *s* Z^2 for the place of the deck; draw *z* B, representing the intersection of the plane of the deck with that of the keel, and find in *z* B the points *f*, *g*, and *i*, representing F, G, and I, the centres of the mizen, main, and fore masts. Proceed next, by lines crossing the deck, parallels to *a* W, or to *s* T, (if parallels to *s* T they must vanish at B,) to find, in the same manner as in the representation of a circle, (Art. 114,) the several points for the upper tier of guns. For the lower tier, mark off from *s* T, *s* M equal to *s* M^2. A line M B will cut G K^{60} in *m*; and *m e* (for the lower tier) will represent half the breadth at the main-mast or midship, as *f d* (for the upper tier) does at the mizen. From *d* and *e* draw to K^{60} I lines representing with the perpendiculars to the deck an angle of twelve degrees. This will show what is termed the *canting* of the ship's side; as will also a line from c to K^{60} I, representing an inclination of five degrees in a similar direction for the upper-deck ports.† Lastly, *s* N being made equal to *s* N^3, will give *n* n^3 representing, at the midship or main frame, the greatest breadth of the vessel. Observe that the line *s* 30°, drawn from *s* to the vanishing line B K^{∞}, shows the centre of the vanishing line of the plane of the ship's stern. This line contains the vanishing points for the sides of the windows, &c.

(212.) To draw the masts. Erect for a base at *a* or *s*, a perpendicular to *a* W, or rather a parallel to B K^{∞}. Draw also to the point K^{60} the indefinite representation of a parallel to the mast, which is here taken to be a perpendicular to the plane of the deck.‡ Let *a* X be the required occasional base, and *a* Y (vanishing at K^{∞}) the representation of a parallel to the mast. Draw *a* B, and through the points *f*, *g*, and *i*, in *s* B, draw the representations *o* K^{60}, *p* K^{60}, and *q* K^{60}. To begin with the proportions of the mizen-mast: mark them off on *a* X, according to the scale of the plans, No. 2., and having

---

* Called, in ship-building, the *half breadth*, or *floor* plan, or *horizontal* plane. The last of these terms implies a vessel *on the stocks*. Our example, plate x., is of a vessel in a storm at sea.

† Called the *sheer*-plan, or plan of *elevation*, being a vertical plane passing through the keel.

* The *body* plan, or *plane of projection*, is a section of the ship at the mid-ship frame, or broadest place, perpendicular to the two former. From these three plans, the necessity is manifest of constant attention to the three particulars, namely, length, breadth, and depth, or thickness, (Art. 156, 157, to 161,) essentially combined with all solid forms.

† Those timbers whose planes are perpendicular to the sheer plan are called *square* timbers, and those whose planes are inclined to it are called canted timbers.

‡ Whatever deviation from this perpendicular may be required by the naval architect might be expressed with the same accuracy; (Prob. V.;) but the small size of our diagram makes the difference quite immaterial.

Painting. found the dividing point of a Y, (Art. 133,) transfer to a Y the divisions of a X. Draw $b\,c$ (a parallel to a W) through the line of the mizen-mast. At b, b O vanishing in K^{60} represents a parallel to a Y. From the divisions therefore on a Y, draw lines to B (Art 77) cutting b O in the points O and r, through which O o and r R, two parallels to $b\,c$, will give o for the place of the cap, and R for the place of the round top. Proceed in the same manner for the main and fore masts, and indeed for all lines in planes parallel to the plane of the keel.

To draw the bowsprit. Let V k and $a\,y$ vanishing in the line B K^{60} represent the angle made by the bowsprit with the base a X, just as a Y represented the angle so made by the masts. Mark off on a X the required proportions, which will be transferred to $a\,y$ by means of its dividing point. (Art 133.) Next, a parallel through V to a W will give the point h; through which $h\,j$, vanishing in the same point with and similarly divided with $a\,y$, (Art. 77,) will give the point j for the cap of the bowsprit. Lastly transfer the point j to k, by a parallel $j\,k$ to a W.

(213.) A representation is given (plate x. fig. 1, No. 4.) of a double cross formed of seven cubes. The vanishing lines and points for the cube in the centre are manifestly the same as for the surrounding six. None of the three pairs of parallel sides is parallel to the perspective plane; and their three vanishing lines form a triangle, (Art. 160,) two points of which are in the line N O, marked 40° and 50°, and the third at 65°, in the vanishing line D C M.

No. 5. is the representation of an octahedron, or eight-sided figure, formed by two pyramids having a common base. It is a regular solid, contained under eight equilateral triangles, whose intersections are the sides of the three squares $a\,b\,c\,d$, $d\,e\,b\,f$, and $a\,e\,c\,f$. These squares intersect each other in their respective diagonals, ($e\,f$, $a\,c$, and $d\,b$) (Prob. X. Cor. 3.) and each of the squares is a common base to two pyramids.

No. 6. represents a six-sided figure, formed also of equilateral triangles. It shows a method by which is found the vanishing line of the base of a pyramid whose six sides are equilateral triangles; one of the six (*viz.* the side $g\,\sigma\,h$) being parallel to the perspective plane. At the point L (C L being the principal distance) make $t\,l\,r$ an angle of 60°, or $r\,l\,w$ an angle of 30°. Find the perpendicular $d\,r$ to the base of the equilateral triangle t L r, and cut off L s equal to it. Then with $s\,m$ (equal to $t\,r$) and L m (equal to L s) construct the triangle (isosceles) L $m\,s$, and produce m L to U. U L is the direct distance, C U the central distance, and U the centre of the required vanishing line; and the triangle $\sigma\,\lambda\,\mu$ will represent the original s L m, *viz.*

$$\left.\begin{matrix}\text{The angle } m\text{ L }s\\ \text{L }m\,s\\ \text{L }s\,m\end{matrix}\right\}\text{will be represented by}\left\{\begin{matrix}\mu\,\lambda\,\sigma.\\ \lambda\,\mu\,\sigma.\\ \lambda\,\sigma\,\mu.\end{matrix}\right.$$

The line σ M^{70}, or $\sigma\,p$, passing through the apices of the two pyramids, is found by bisecting the base $g\,h$, and drawing from λ to the dividing point of $h\,\mu$ a line cutting $h\,\mu$ in o. (Art. 118.) Next, to the point o draw the representation $g\,o$ of a perpendicular to $\mu\,h$. A line $s\,p$, or σ M^{70}, drawn through the point where $\lambda\,\mu$ cuts $o\,g$, will be the line required, representing a perpendicular to the plane of $g\,\mu\,h$ at its centre. Or the vanishing point of $\sigma\,p$ may be found by Problem IX. (Art. 196.) Observe, that for the four sides of the upper pyramid $g\,\mu\,\sigma\,h$, there are but three vanishing lines, (Art. 158,) since one side is parallel to the picture. Also the vanishing line of $\mu\,g\,h$ will be a parallel to $g\,h$ at U, (or a perpendicular to U C,) and the other two vanishing lines will be parallels to the bases (Art. 61) $g\,\sigma$ and $\sigma\,h$, cutting the vanishing line at U in the points where it is met by $g\,\mu$ and $h\,\mu$. Of Outline.

For the four sides of the lower pyramid there will be four vanishing lines. One, the perpendicular to R C at U, just stated; another parallel to it at the vanishing point of $\lambda\,p$, for the vanishing line of the plane of $p\,g\,h$; and the remaining two crossing the two former in the vanishing points of the lines $g\,\mu$, $h\,\mu$, $g\,p$, $h\,p$.

No. 7. is a dodecahedron, or twelve-sided figure, formed of two pyramids, whose common base (a hexagon) vanishes in P D. The perpendicular $a\,b$, at the centre of the common base, will be found to vanish in the point marked M^{55}. (Prob. IX. Art. 196.) There will be twelve vanishing lines to this figure. To find these, observe that the figure is formed by the boundaries of three equal and similar rhomboids intersecting each other in three lines or diameters, which cross the centre of the hexagon. The vanishing line of the plane of each rhomboid must be drawn from $M^{55\,0}$ (the common vanishing point of their line of intersection $a\,b$) to certain points determinable in P D, the vanishing line of their plane of measure. (Art. 146. See also Prob. X.)

No. 8. is another dodecahedron formed of twelve rhomboids, for the planes of which (since each has its parallel) there must be six vanishing lines. (Art. 158.) The plane of the uppermost vanishes in the line P D.

(214.) That the course of study we are here advocating cannot be prosecuted without considerable pains and unremitting efforts will be obvious. But *nulla dies sine lineâ* must be the Painter's motto. To every mind that prefers certainty to guesswork; to every understanding that cannot be satisfied without a clear and good reason for its mode of pursuing any object; to every imagination that has enough vigour and soundness to despise unqualified applause, and aspire only to judicious praise; we need not urge the necessity of clearness, nor the advantage as well as gratification of obtaining truth. We admit that it is very possible to acquire great correctness of outline, and yet make no acquaintance in any degree with either perspective or anatomy.* By accustoming the eye to measure intervals of distance, and the hand and pencil to nice divisions of lines, as well straight as curved; by observing narrowly throughout the objects to be copied, what points lie above or below each other in a vertical direction; and what points lie on the same level in horizontal lines; and then by transferring carefully these points to the drawing board, or canvass, previously to filling up the intermediate parts; a considerable knowledge may be obtained of the true forms of objects, as well as of their just delineation. We are far from wishing to supersede these useful exercises. On the contrary, we would particularly recommend the mere beginner to practise making outlines of regular figures, such as the triangle, the circle, the square, the parallelogram, the rectangle, and regular polygons in general. Let him

* There is a degree of popular wonderment, often fatal to scientific progress in any Art, excited by the exclamation, How surprising! and yet he *never learned to draw!* or, How marvellous! what an ear! she *does not know a note of music!*

Painting. then proceed to solids, the cylinder, the cube, the parallelopiped, the cone, the pyramid, &c. &c., and all this *by the eye* only, without the guidance of Mathematical instruments, which it will be proper to apply afterwards, as far as such means extend, for correction of each drawing. (Art. 43.)

(215.) A pupil well practised in this initiatory habit will soon acquire such readiness in division of lines as to have the power of marking off at sight, with ease and accuracy, on any given line, a third, a fourth, a fifth, or, what is more difficult, even a seventh, or ninth portion of it. Similar facility may be obtained in the division of angles. For correcting these exercises either a common graduated ruler, the sector, the protractor, or the proportional compasses may be resorted to.

But the intelligent learner will soon find such helps unsatisfactory except so far as the delineation of *one surface* of an object is required, and that surface a plane to which a line drawn from his eye is perpendicular. In short, he will have got *no further than Case I.* (See Prob. II. and Art. 156.) In his attempts at outline of *solid* figures no drawing can be implicitly relied on without examination by the rules of Perspective, In an outline, for example, of the pyramid $h\,\sigma\,g\,\mu$, (plate x. fig. 1, No. 6.) although the side $h\,\sigma\,g$, being an equilateral triangle, is a regular figure, (because represented parallel to the plane of the picture,) yet the side $\mu\,\sigma\,g$ can never be satisfactorily drawn without knowing how the point μ is obtained. (Art. 118.) What is here observed of the pyramid $h\,\sigma\,g\,\mu$, may be said of any other solid whose sides are foreshortened; that is, are seen otherwise than immediately facing the spectator. The outline of a globe is, as we have already shown, (Note to Art. 157.) the only figure which, at all times, faithfully represents the original under any change of position.

There are, however, several methods, and some of them of exquisite mechanical ingenuity, by which, without knowledge of Perspective, the draughtsman may obtain his purpose. Neither do we forbid him these aids. The *camera obscura* is an invention long known to artists.* In Treatises on Art, it has been recommended as not only useful for ascertaining the correct forms of objects, but also their tones of colour, and gradations of light and shade. Sir Christopher Wren, in the *Philosophical Transactions*† for March 1669, communicated an invention by which the artist, looking *horizontally* through a small hole fixed as a sight, may follow at the same moment on paper, with the point of his pencil, the progress of a small bead‡ along the apparent boundaries of the object to be delineated. This idea of Wren may, possibly, have suggested to the late Dr. Wollaston§ his admirable contrivance of the *camera lucida*, by which a spectator looking *vertically* downwards* through a small hole sees at the same moment the reflected image of the object together with the point of his pencil in apparent contact with it on the paper. The advantages of the *camera lucida* over its long established namesake in its portability, in its ready application, and particularly in its property of presenting the objects to be traced, not in an inverted order, but in their true, erect, and natural positions, distinguish it as one of the most useful instruments of its kind. But it is not an infallible guide. It is only an approximation to perfect accuracy. Of Outline.

(216.) Perhaps the most satisfactory method of obtaining an outline by mechanical aid is the following: which, although claimed by some as a wholly modern invention, is as old as Leonardo da Vinci, and has been recommended by him in his celebrated Treatise on Art † Over a plane of the best glass entirely pure and colourless, let a preparation be spread of gum or isinglass, sufficiently thin to admit distinct vision; and sufficiently strong to retain the marks of a blacklead or other crayon. Opposite to, and fixed at a convenient distance (*viz.* the principal distance, Art. 10) from this transparent surface, the eye of the operator, through a small hole or sight, looks upon the objects to be drawn; and his hand shapes the outline, over which, when completed, he places a sheet of thin drawing paper, tightly stretched in an open frame. The original tracing on the glass held to the light will then shine through the paper, and may be again traced and transferred to it. The above process is facilitated by using two crayons of different colours: as a red for the first, and a black for the second tracing; or *vice versâ*. If tracing paper be used, the counter-drawing may be transferred to panel, canvass, or any other material.‡ Mechanical method of outline by Da Vinci.

---

* *Benchè Lionardo non faccia menzione della camera ottica, pur si bene ne descrive la costruzione e gli effetti, che a lui anzichè ad altri è chiaro doversi di questa macchina l'inventione. Storiche annesse da C. Amoretti all' edizione del Trattato della Pittura da L. da Vinci*, 8vo. Milano, 1804.

† Vol. iv. p. 898.

‡ An ingenious gentleman, Mr. Ronald, has simplified this contrivance, and comprised it in a pocket case of about "a foot in length, and two inches in breadth." This instrument, which we have seen at Mr. Cary's, the Optician's, seems a decidedly successful improvement upon its numerous predecessors.

§ In vol. lxxv. p. 366. of the *Philosophical Transactions*, a similar instrument to that of Sir Christopher Wren's is introduced, the invention of Mr. James Peacock; and in vol. xxviii. of the *Philosophical Journal*, a drawing and description are given of an instrument resembling the *camera lucida*, but less portable, invented by the celebrated Ramsden, and improved by his pupil Mr. Thomas Jones.

* This perpendicular distance of the eye from the paper answers to the principal distance.

† The following are his words. *Abbi un vetro grande come un mezzo foglio di carta reale, e quello ferma bene dinanzi agli occhi tuoi; cioè tra gli occhi e quella cosa che tu vuoi ritrarre; e poi ti pone lontano con l'occhio al detto vetro due terzi di braccio, e ferma la testa con un instrumento, in modo che no la possi muovere punto. Dipoi serra, o cuoprite un occhio, e col penello, e con il lapis, segna sul vetro quello che di là appare, e poi lucida con la carta tal vetro, e spolverizzandola sopra una carta buona, dipingela, se ti piace, usando bene di poi la prospettiva aerea.* Da Vinci, *Trattato della Pittura*. Edition of Manzi, Roma, 1817, p. 72.

‡ Counter-drawing is a term applied to any method of obtaining, with mechanical accuracy, the copy of a picture or design. For this purpose, various media are used, as fine linen, oiled paper, or any other transparent material, which, being laid over the work to be copied, admits distinctly through it a sufficient number of the lines and shadows to be followed in ink or in pencil, on its surface with or without colour. When the copy is made, let the opposite side of the transparency (if of paper, or of a substance similarly pliable) be rubbed with dry chalk, white, black, or of any tint required. Next lay the copy with its chalked side downwards over a clean canvass or blank sheet of drawing paper, and go again over the outline with a slate-pencil or other blunted point. The original design may by this process be repeatedly transmitted and copied. Counter-drawing may also, as appears above, be effected by a glass medium. It is sometimes performed by frames or nets divided into squares, composed of wire, silk, or thread, and laid over the painting to be copied. The points marked on sides of these squares are then transferred to the surface which is to receive the copy. The parallelogram, the pentagraph, the camera lucida, &c. are instruments in requisition for counter-drawing. Copying machines are modifications of the chalking process above described.

Instruments, termed Delineators, for drawing from nature, have been constructed on like principles to the net-work here mentioned. In vol. i. of the *Philosophical Journal*, a simple and ingenious con-

Painting.

Other mechanical helps might be named. But our object here is not to dwell upon expedients by which the rules of Perspective are supposed to be superseded. Our meaning is to assure all who trust implicitly to such expedients, that without acquaintance, practically, at least, with this interesting branch of Geometry, no helps from even the completest mechanism will avail. The slightest accident may cause, in any instrument hitherto constructed for this purpose, a woful deviation from Truth and Nature. To correct these deviations is the business of Perspective; and to give the artist such well-placed confidence in his representation of outline, as will encourage him to finish his performance without fear of being reduced to the shame and trouble of subsequent attempts (when they may be too late) at alteration of his work.

(217.) Thus far we have proceeded in this elementary department, in these introductory rudiments as they only claim to be called, of the Grammar of Painting. For, indeed, a knowledge, however perfect, of Perspective, is to Art, no more than what a perfect knowledge of orthography or of pronunciation is to Language. No very great credit in the exercise of written or spoken Language attaches, among educated persons, to the individual who spells or who pronounces it with correctness; and yet to spell or to pronounce incorrectly, is held disgraceful. So also, merely to draw with accuracy ought not to satisfy the aspiring artist. His outlines, to claim conspicuous merit, must have force and meaning as well as truth; while at the same time he should regard and avoid false Perspective, with as much alarm and abhorrence as is manifested by the rhythmical scholar towards a *false quantity!* There is a difference too in their origin, between the language of the Painter and that of the Etymologist, which acts, or ought to act, upon the mind of the former as a continual incentive to superior caution, and more jealous observance of elementary rules. The laws of outline are deduced from daily and universal experience.* They appeal to facts which every eye, almost instinctively, can attest; whereas the laws of speech are conventional and arbitrary. To all attempts, therefore, of the careless draughtsman to find apology for deficiencies in Perspective by appealing to like examples of deficiency in the Golden Age of Art among its ablest professors, we answer that those great authorities would, in a later Age, have been most keenly sensitive to criticism in these respects. They would be the first to perceive, that in the natural progress of Taste commensurate with the spread of general knowledge, inattention to the rudimental particulars in question leads as effectually to weaken, or destroy, the intended impression of a fine Picture; as the delivery, in a broad provincial accent, of even the most brilliant Speech in Shakspeare would be insufferable to polished ears, and would be found to mar and murder all its eloquence and beauty.

Of Outline.

(218.) We would next direct the student's attention to some acquaintance with Anatomy. While pursuing this important study, he must not imagine that Perspective may be laid aside.* On the contrary every step in that initiatory path leads to proficiency in this more advanced stage. As well might a Grammarian (to repeat the above figurative allusion) discard the most essential letters of his alphabet, and pretend to form a Language without vowels, as an artist expect, without the practice of foreshortening whatever object, animate or inanimate, may be submitted to his pencil, to obtain even the lowest grade of professional mediocrity. Perspective is, as we have seen, the *Art of foreshortening*. The rules of it have been applied, in the preceding examples, to objects possessing neither vegetable nor animal life; to works of human contrivance in Mechanics and in Architecture. We must now apply it to the representation of natural phenomena. And of these we begin with animal forms, as having more obvious regularity of outline.† Outline of landscape and of the scenery of Nature will follow next in order. After which some necessary observations on outline as connected with character and expression will then conclude this division of our subject.

Of Anatomy. Its connection with Perspective in Painting

(219.) The study, indeed, of Anatomy for the purposes of Painting, has in view two objects, which we take leave to distinguish by the terms Configuration and Expression.

1. The first of these is introductory to the second. It consists in such a knowledge of the several parts of the animal figure as can represent each part in its proper form and place, and can preserve at the same time the

trivance is described by Mr. R. L. Edgeworth as the invention of Miss Maria Edgeworth. Another Delineator of easy construction, is a fixed upright frame, across which a number of very fine threads or wires are stretched, crossing each other at right angles, and dividing the frame into a number of small squares. The paper on which the drawing is made is also ruled with a like number of squares. Looking through a fixed sight at a little distance from the frame (answering to the principal distance, Art. 9, 10) the operator observes on what square the object he wishes to represent is found, and draws the object in the corresponding square upon the paper. At the end of Brooke Taylor's *Perspective* (edition of Kirby, 4to. 1768) is described an instrument to the same purpose formed by two rulers, horizontal and vertical; the former fixed, the latter sliding in a groove upon it. Both are numbered in equal divisions that correspond to a certain number of ruled squares on the drawing. The operator looking, as before, through a fixed sight adjusts the vertical ruler to any point in an object, and then comparing the graduation on the rulers with that on the sides of his drawing-board, he transfers each point so found on his *perspective plane* to its corresponding place on his paper, just as he would compare, in copying a map, the points of longitude and latitude, and find by their means the relative position of any given spot, town, or mountain.

* *L'Anatomie et la Perspective sont des Sciences exactes; elles s'appuyent sur des démonstrations: elles ont pour objet des vérités démontrées. Lorsque dans les écoles et dans l'opinion publique, ces Sciences ne seront plus considérées comme fondemens indispensables de la Peintare, on pourra prononcer hardiment que cet Art et les parties qui en dépendent sont menacés d'une prochaine décadence.* Watelet, *Encyclopédie Méthodique. Beaux Arts.*

* The necessity for combining Perspective with Anatomy arises from the general regularity of animal forms. If there were no symmetry in the human frame: if, for instance, the right side did not assimilate with the left, Perspective might be less important, and the figure of a man might be drawn as much *ad libitum* as that of a tree or a mountain. Mengs, who is a strong pictorial authority, has these words in a Treatise on Art at the end of his Works. *Para dibuxar bien las estatuas es necessario saber la perspettiva.*—To draw well from the antique, a knowledge of perspective is indispensable. *Obras de* Mengs, p. 334. *en* 4to. Madrid, 1780.

† We would recommend the student to make frequent drawings of such machines, more or less complicated, as he may have opportunity of examining either in motion or at rest. This practice gives accuracy to his eye and hand, and prepares him for delineations of a higher order in *animal* mechanics. He will afterwards be better able to appreciate in his mind, and to represent with his pencil, the most perfect state to which he can possibly conceive the means and powers of locomotion and of machinery (if the works of Divine wisdom may so be termed) to be advanced. And indeed, to all who desire practical and endless evidences of the immeasurable interval between the contrivances of Man and the works of Him who gave life, and mind, and soul to the contriver, we would recommend, previously to anatomical inquiries, as much acquaintance as their leisure will permit with the best mechanical efforts of human ingenuity.

Painting.

several proportions of any one limb or feature compared with any other.* To this preparatory knowledge belongs a vocabulary of the principal bones and muscles; the outline and position of the former in a state of rest; together with the shapes, origin, and insertion of the latter. And as the state of animal rest seems included specially under this head of the subject, we shall here have opportunity of allusion to the natural arrangement proper and necessary for balancing the animal in any required posture. We here also may remark particularly upon the agency of such muscles as are partly involuntary, *i. e.* in some degree independent of the will. Under this head it will suffice to describe the *position* of the voluntary muscles, or those under the influence of volition.

2. The second object and ultimate aim of the student is Expression, of which, however, under the head Composition, we shall say more in its more appropriate place. Expression regards the use and active application of the materials before enumerated. As in the Art of Navigation it is one thing to know the names, form, position, and relative magnitude of the decks and timbers; of the masts and yards, blocks, sails, and rigging; and quite another kind of knowledge to apply all these organs of motion to their respective uses · so in Anatomy the study of action follows that of mere configuration. And this study of Anatomical expression involves, with every artist, considerations that demand consummate judgment, taste, and skill. Here comes his ordeal. Here he gains that point at which the stride of genius begins, and from which a chaste and vigorous imagination springs, like a giant, into an arena suited to its powers, leaving far behind it the laborious insipidity of less gifted, unobservant, and uninventive minds. Here, in short, lies the especial province of the artist: namely, out of infinitely varied forms to make a happy choice of such peculiarities in look or gesture as are best adapted to convey, through the magic of sympathy, certain passions or sentiments of the mind, or to indicate certain propensities of the will. All the *voluntary* muscles are, in attaining this latter object, called alternately into play, for which in a state of rest he only had before acquired the nomenclature.

Definition of Anatomy as applied to Painting.

We have taken the more pains in drawing the above distinction in order to justify to our readers the enlarged sense in which, by the term Anatomy, we wish to be understood. We do not limit this word, as has been often done in Treatises on Art, to the study of the human subject alone. We consider that an acquaintance with the forms of animated nature, generally, is essential to the student. He will be well rewarded by devoting close attention to those forms, Not only he will find that every animal has a *character* analogous to the lines of his pencil in depicting it; but also that he will be enabled to represent with more elevation and dignity, the noblest of living shapes, the frame of Man, in proportion as he abstracts it from mere animality and appropriates to it features, and signs and movements

* *L'Anatomie demande lorsqu'on veut s'en instruire, qu'on étudie, qu'on observe, qu'on médite, dans les plus grands détails, tout ce qui compose l'organization des êtres vivans. Cependant, son objet principal est l'organization de l'homme, comme la plus intéressante, relativement à nous. L'étude de l'Anatomie doit aussi s'étendre sur l'organization des animaux: s'occuper, pour s'éclairer davantage, des rapprochemens et des comparaisons du méchanisme des animaux et de celui de l'homme. Il ne s'agit pas pour le peintre de se plonger dans cette immense entreprise. L'artiste ne s'occupe, en général, que de l'extérieur.* Watelet, *loc. cit.*

purely intellectual. In order to do this, the artist must be familiar with those peculiarities of inferior animal expression which, wherever they appear, as in nature they are for ever doing, degrade and brutify the human subject. He must know what to reject, before he can turn to use what it is proper to retain.*

Of Outline.

(220.) But we must not be tempted to enter further upon this interesting portion of our task until we have attended duly, as was proposed, to the *configuration* of animals.

In order to avoid confusing himself among the multitude of parts essential to life and motion, we advise the learner to examine, separately, certain larger masses or districts of the animal body, so that he afterwards may mark with greater distinctness and fidelity their relative position, and the union of the whole when in their natural state of action or of rest. These portions seem very conveniently reducible to three: 1. the *region of the Head;* 2. the *region of the Thorax*, or chest; 3. the *region of the Abdomen;* all terminating at a common boundary called the spine or back bone, the respective divisions of which into *cervical*, *dorsal*, and *lumbar vertebræ*, serve to indicate, in each species of animal, the extent of each region. Consequently, in that of the head we include the bones and muscles of the neck; in that of the thorax, the arm of the human subject, the wings and forelegs of birds and brutes; in that of the abdomen, the legs of the biped, and hinder legs of quadruped animals. It will be useful also for the student, under each of the above-named three districts of the body, to divide his observations into,

Animal structure divided into three regions.

1. Such peculiarities of the bones as are essential to marking the outward form.

2. Imaginary points, lines, and planes, for deter-

* The Work of Mr. Charles Bell on *Anatomy of Expression* is or should be familiar to every English artist. Like Camper, who preceded him on a similar subject, this author joins the advantage of considerable ability as a draughtsman to professional skill as an Anatomist. Remarking that the Grecian Sculptors were evidently intimate with Comparative Anatomy, he thus quotes from Winkelmann. *Pour peu qu'on examine la configuration du roi des Dieux, on découvre dans les têtes toute la forme du lion, le roi des animaux; non seulement à les grands yeux ronds, à son front haut et imposant, et à son nez, mais encore à sa chevelure, qui descend du haut de la tête, puis remonte du côté du front et se partage en retombant en arc: ce qui n'est pas le caractère de la chevelure de l'homme, mais celui de la crinière du lion. Quant à Hercule les proportions de sa tête ou cou nous offrent la forme d'un taureau indomptable. Pour indiquer dans ce héros une vigueur, et une puissance supérieure aux forces humaines, on lui a donné la tête et le cou de cet animal; parties tou. autrement proportionnées que dans l'homme, qui a la tête plus grosse et le cou plus mince. Œuvres*, p. 367, 368. "I would refer," says Mr. Bell, "the peculiarity of the beautiful and impressive form of the antique head to this principle, that the ancient artists sedulously avoided whatever was deemed characteristic of the brute, and magnified those dimensions of the human countenance which mark the distinguishing attributes of Man. The Principle of composition among the Ancients is worthy of our study: they soon left mere imitation, and advanced to a higher study, that of ideal form, in which they endeavoured to combine excellences, and to avoid whatever might tend to injure the design or to impair its effect. And in this pursuit they seem to have studied, with peculiar care, the forms and expression of animals as contrasted with those of mankind. We trace this method of study in many pieces of antiquity where the artist has endeavoured to convey the character of dignity, or bodily strength, or courage, by transfusing into his composition some of the peculiar forms of animals, as in the personification of Gods and Heroes. We may trace it also in ancient Masks, Satyrs, Fawns, and Centaurs, where it was the artist's design to brutify the countenance; a peculiarly ludicrous effect is produced by the union of brutal physiognomy with human expression." Some Treatises by this author on *Animal Mechanics*, published by the Society for the Diffusion of Useful Knowledge, we particularly recommend to students in Art.

Painting.

mining the relative position of the bones, as seen from any point of view.

3. The motions of which the bones in each region are capable.

4. Such muscles as are visible instruments of motion.

The remarks which our limits permit under each of the regions mentioned, will, accordingly, invite attention to those four particulars.

Region of the head. Its bones.

(221.) 1. THE REGION OF THE HEAD. To begin with the *bones*. For the names, forms, and articulation of these we refer the reader to our pages on Anatomy and Osteology, as well comparative as confined exclusively to the human body. We here only remark, and the remark applies to outline of animals generally, that, for the purposes of Painting, all those prominences which are but thinly coated with muscular or tendinous fibre, require to be most minutely examined, to be carefully borne in mind, and to be continually copied in various lights, and under every point of view consistent with their appearances in the living subject. Such as, in the human skull: 1. The two protuberances on the forehead, conspicuous in all adult subjects, and arising from the enlargement of the frontal sinuses. 2. The temporal ridge of the os frontis, on each side of the forehead, extending externally upwards from the orbital arch towards the temples.* 3. The ossa nasi, giving form to the bridge of the nose.† 4. The orbits or sockets for the eyeballs,‡ and more particularly the zygomatic process of the cheek bone. 5. The zygoma, or jugal arch, formed by the uniting processes of the cheek and temporal bones. 6. The mastoid processes. 7. The occiput, and the points immediately behind the foramen magnum.§ 8. The foramina of the ear. 9. The lower jaw. Its several motions upward, downward, and lateral, round the centre of the glenoid cavity. Its angle and the length of its two sides* forming that angle. In infancy its angle obtuse, and its alveolar extremity comparatively short. In manhood its angle approaching to a right angle, and its alveolar process nearly on a vertical line with that of the upper jaw. In old age its angle again obtuse, with a remarkable protrusion of the chin from loss of teeth. 10. The interval between the outermost of the six front teeth, or rather between the two foremost of the molares, an interval which determines the width of the mouth and breadth of the chin.† 11. Respecting the seven bones of the neck, there seems occasion to notice only the peculiar way in which the first or uppermost, termed the *atlas*, encloses and turns upon the second, termed the *dentata*.

Of Outline

Method of Camper, by imaginary lines.

(222.) The next concern of the artist is, to devise *certain imaginary points*, *lines*, or *planes*, by which he may most readily complete his outline, or correct it when completed. Professor Camper, in the Work which we have already had occasion to quote, has given a method which appears sufficiently accurate, and very practicable for outline of the human head, and which he proposes to substitute for the method in his time (he died in 1789) commonly received. "All writers on the principles of Drawing," he observes, (in page 109 of the translated Work,) "propose the oval, as the best method of obtaining a sure hand in sketching heads in every position, and of every age. No one has ventured to deviate from the method, notwithstanding every one must have been convinced, from experience, that this figure is frequently defective, and merely applicable in a few instances." The author then proceeds to show, that the oval form commonly received, although useful for finding certain points in the full face, is not applicable for determining the features correctly in any other position. The oval which he conceives to be a good one, and "well adapted to all those cases where it can be applied with advantage," he describes as follows:

"Let the height A B (see a copy of his diagram in plate iii. fig. 6) be divided into four equal parts, A H, H I, I F, F B; of these take three-fourths, or A F, equal to K L, for the largest dimensions, and describe the circle A K F L. The ears are to be placed between the parallel lines K L and M N. Divide K L into four equal parts, and take one-fourth for the breadth O I and I P," (between the temples and the top of the nose.) "Extending the compasses from F to I, or to the half of A B, draw from the point F, in the centre line A B, the circle B N I M. Complete the oval from K to M and L to N. Finally, divide A B into four equal parts, of which one is destined for the nose; and B F into three, of which the uppermost gives the seat of the upper lip Q R."

(223.) In other parts of his Work this ingenious and

* "Two kinds of structure are observed in the horned pecora. These are either proper horns, as in the genera of the ox, goat, and antelope, or bony productions, as in the genus *Cervus*, which includes animals of the deer kind. In the former genera, the external table of the frontal bones is elongated into one or more processes: in the greater number the frontal sinuses extend into the horny processes. In the stag (in the male only in most genera) the frontal bone forms a short, flattened prominence, from which the proper antler immediately shoots." Blumenbach's *Manual*, Lawrence's edition, 8vo. Lond. 1827, p. 22.

† The varieties of individual form in the space between the inner corners of the eyes, are infinite. Notwithstanding the smallness of the ossa nasi in the human subject, they constitute a feature so strongly characteristic as to require the most careful study. The integuments which cover them are so closely fitted as to show every the most minute indentation. By the Portrait-painter, who must aim especially at *likeness*, the peculiarities of the nasal bones, as well in their projection from the face as in their junction with the upper maxilla and orbital arch, cannot be examined too particularly. On this see Da Vinci, *Trattato della Pittura*, cap. 187. 189. These bones in quadrupeds are yet more remarkable. The Roman nose in a horse is a very distinguishing feature.

‡ Of the two corners of the eye, the inner one is always the more prominent; consequently, if two straight lines be drawn, one through the corners of each eye, the lines will meet and form an angle somewhere opposite the junction of the ossa nasi. For the Perspective of the face, the lines forming this angle require especial attention. In most birds, and in all timid or watchful animals, the hare, the cat, the horse, &c., this angle is proportionably acute, and the outer corner of the eye retires so much as to admit, not only of looking sideways, but, in some degree, even of retrospective vision.

§ The parts here numbered 6 and 7 are not important so much for their form, as on account of the muscles thereto attached. For, as in order to draw any line, straight or curved, with precision, the points must be first clearly decided where to begin, and where to end; so in delineating the muscles, the draughtsman must previously assure himself where they originate, and to what point or points they tend.

* See Dr. Cogan's translation of Camper, 4to. Lond. 1794. In page 67, the progressive changes are remarked in the growth of the upper and lower jaws. In page 72, the effects of age are noticed on these features. See also Blumenbach in the Work before quoted, p. 24. sec. 23.

† "The size of the mouth is in proportion to the distance of (interval between) the dentes canini, or eye-teeth, in men and animals, with only a few exceptions. Or, to speak more properly, the angles terminate at the commencement of the first double tooth or grinder. Many animals have not the eye-teeth. In apes therefore, in the orang, and in the negro, the rim or angle of the mouth must be more distended than in a European, as the projection of the upper jaw enlarges the distance," (interval.) "For the same reason the mouth of the antique will be the smallest." Camper, p. 43, 44, of the Work above quoted.

skilful Anatomist introduces methods for marking the head in profile. He conceives the most peculiar characteristic of the facial form to consist in the protrusion either of the upper or of the lower features; between which he draws a line dividing the head in profile into proportional parts, in like manner as M N, in the last-mentioned figure, divided the full face. This line, in the profile, we will distinguish by the name of the *occipital* line. It begins at a point exactly under the nose, in the vomer, and crossing the auditory passage at E (plate iii. fig. 2—5) extends backward to the *occiput*. The other line, that was represented in the full face by M N, we will call the *auditorial* line, since it passes from the lobe, or rather from the *meatus auditorius* of one ear to that of the other.* Next, to mark the extent to which, as was observed, the upper or lower features protrude or recede, a third line is introduced by Camper, which he terms the *facial* line. It begins at the centre K (plate iii. fig. 3) of the forehead, and passing to the foremost of the alveolar processes of the upper jaw, cuts the occipital line, and its parallels, making a certain angle *towards* the face of the subject measured He terms this the *facial angle*. In the antique, or Western Asiatic, from the prominency of the Grecian forehead, he averages it at from 90 to 100 degrees. In the European at from 80 to 90. In the negro at from 70 to 80.

Occipital, auditorial, and facial lines

Facial angle.

"The two extremes," he observes, "of the facial line" (angle) "are from 70 to 100 degrees from the negro to the Grecian antique. If the projecting part of the forehead be made to exceed the 100th degree, the head becomes mishapen, and assumes the appearance of the hydrocephalous or watery head. On the other hand, make it under 70 degrees, and you describe an ourang or an ape. Lessen it still more, and you have the head of a dog. Increase the minimum, and you form a fowl; a snipe, for example, the facial line of which is nearly parallel with the horizon; that is, both the maxillæ will be lengthened, and the lower maxilla will gradually lose its angle. No space is now left for teeth, of which therefore the feathered race are destitute."

(224.) In page 115, Camper thus proceeds: "Having diligently traced," says he, "the growth of the maxilla, and of the nose, in the heads of infants that were but a few weeks old; an idea suggested itself, that in drawing or painting of the head, the best method would be to imitate the process of nature; first to form the cranium or skull, then mark the facial line in the direction required, and afterwards arrange the other parts according to given proportions.

"The skull is an horizontal oval, of which the hindmost parts are the largest, and the forepart rounded like the section of a ball or a globe. I first draw this oval by means of two circles, the one is S L V E W, (see plate iii. fig. 3,) the other K U Z, which is in size eight-ninths of the other circle.† Draw the horizontal line S T, which extends from the centre of the large circle S to T, the centre of the smaller; and is one-fourth of the larger circle.* From the centre S, I let fall the perpendicular line S Q; this marks the seat of the orifice of the ear, and of its lobe at E.

"Secondly, I draw P G, the facial line, in the degree of inclination required. K marks the place of the forehead; F the line of the eye; I the nose; H, and a third of I B or I G, the mouth. Thirdly, I complete the oval K L V E Z, which marks with sufficient accuracy the lower edge of the eye-socket. Fourthly, I take G N, which may be equal to the size" (length) "of the nose, or less, according to the inclination of the facial line, and thus I mark the commencement of the neck.

"To delineate a person advanced in years, I first draw the oval K L V E and the facial line P K G. (See plate iii. fig. 2.) Considering G to be the seat of the chin, in its more perfect state, I fix the compasses in E, and draw from G the curved line *g* G, placing the tip of the chin at *g*, which is about two-thirds from I B. I next divide G I into three equal parts, the upper of which is for the mouth.

"I also draw the protuberance K F, as this generally projects considerably from the facial line in very aged persons. Finally, I take the length of a nose at G N, and sketch the neck N O.

"In children the form of the cranium being similar, (see plate iii. fig. 4,) the oval must be drawn as before, then the perpendicular line L Q. Next the facial line, P G, (since children have not the protuberance on the forehead,†) must be placed within the perpendicular line. Secondly, the eyes are two-fifths of the whole height," (of the head,) "measuring from under the chin; and three-fifths from the top of the forehead. This agrees with the proportions of De Wit and Alb. Durer. Thirdly, the distance from I, to *e*, the place for the nose, is equal to one-fourth of the line L Q. But as the upper and lower jaw are one-third narrower in young children, as well as in aged persons, the line *a b* must be drawn from A B to L Q, and also the oblique line *c d*. Thus *g* is the point of incidence for the tip of the chin, and G for the mouth. A *a* is now divided into five parts also; three-fifths of which will indicate the line of the eye, while two-fifths are destined for the face. In drawing the sketch, first strike the oval, then draw the facial line P G. Let G *g* be noted upon the line *d c*, and then draw a line from *g* to *h*, the origin of the neck behind. When the mouth is to be represented more open, G must be placed proportionably lower and more backward.

(225.) "To delineate the negro (plate iii. fig. 5) a similar method must be observed. After the oval is formed, draw the facial line P G inclining backwards. Then draw a line from B to H, and you have the point of incidence at K, which limits the mouth," (by a line from K to B.) "Thus you obtain the peculiar form of countenance. B N being equal to one-fourth of A B, points where the neck commences."

One more example from Camper will show his mode of drawing the heads of children viewed in front. (See

* Both these lines, the occipital and the auditorial, are supposed to pass through the centre of the cranium, and the former to bisect the latter, in a point just over the centre of the head's motion, near its junction with the neck. For example, *j q* (plate ii. fig. 8) and *h i* (fig. 9) represent the auditorial line. Also *w h* (fig. 7) and *s p* (fig. 8) represent the occipital line.

† This is confusedly expressed by the translator. He means that the radius of the circle S L V E W is as nine; and that of K U Z as eight.

* That is, S T, the interval between the two centres, is one-fourth of the diameter of the larger, or hindmost circle.

† "Infants just born have no cavity above the nose and the eye-sockets, and therefore have a flat forehead, that is, its central part projects further than at K F, (plate iii. fig. 2 and 3,) whereas in adult persons the latter part projects further than the former, and in aged persons still more. It is for this reason that the nose of a negro appears to sink so deep, and also that it appears much more compressed in an aged than in a young negro." Camper.

plate iii. fig. 7.) In front, as in profile, the depth and breadth of the head retain the same ratio to each other as in adults: but the length or height is less in children by one-twelfth. This diminution being made at the chin, A B is divided as before (Art. 224) into five equal parts, two of which form the radius of the upper circle, and the three lowest, or D B, the diameter of the lower circle. "The head," observes the author on this figure, "is only four eyes in breadth, which is the true proportion, and not five."*

(226.) The indispensable application of Perspective, or "the Art of foreshortening," to the outline of every object, has been insisted upon. It is, therefore, not surprising that the above rules of Camper, however correct and carefully deduced from examination of the bones of the skull, should be only partially useful; being exemplified by him on forms of heads viewed only under two aspects, namely, in front and in profile. Whereas the draughtsman, for drawing solid figures, must have "length, breadth, and thickness." (Art. 156.) The variety of other aspects, besides those given by Camper, is infinite in which the head must require to be delineated. We shall endeavour to suggest how his method may be made more extensively available to the student. For this purpose we desire the learner to regard the human cranium no longer in the light merely of an oval or plane figure, but as a spheroid or solid composed from two spheres: containing at its larger end the cerebellum; at its smaller the cerebrum.

This spheroid will be divided longitudinally and transversely by three planes.

Three planes, at right angles to each other, divide the cranium; viz. the maxillary, the mesial, and the coronal plane.

1. The *maxillary*, or occipital plane, containing the occipital and auditorial lines before described. (Art. 223.) Thus, the maxillary plane *l v r* (plate ii. fig. 8) contains the occipital line *s p*; and the auditorial line *j q*. And in fig. 9 the maxillary plane *e l k f* contains the auditorial line *h i*.

2. The *mesial* plane,† at right angles to the former, and containing, besides the occipital line, a line *x z*, (plate ii. fig. 7,) or *a g*, (fig. 9,) which forms the *axis* of the skull. Consequently in

Plate ii. fig. 7.
fig. 8, } the mesial plane is { *z x y h.*
fig. 9, } { *u n o t.*
{ *d c b.*

3. The *coronal* plane, which contains the line of the head's axis, and also the auditorial line. It is perpendicular to the two former planes. It extends right and left from the *corona*, or crown of the head, near *x*; (fig. 7;) and is parallel to the perspective plane, whenever a front or full view of the face is taken. From an apprehension of crowding and confusing our diagram the coronal plane is not exemplified in the plate.‡

Application of Camper's method universally.

(227.) Having fixed upon some point, as *s*, (plate x. fig. 1, No. 9.) for a centre of motion to the head, a little above the upper vertebra of the neck, draw through *s* towards the corona a line Q L or Q σ for the axis of the head, and to this draw also through *s* the representation E *s e* of a perpendicular in the direction of the auditorial line. Or, if E *s e* be first determined, draw through *s* the representation Q *s* of a perpendicular to E *s e*. Let *s* Q represent the length of a nose, (or one-fourth of Q L, the length of the head,) at the distance of the point *s*, (Art. 39,) and let *s* L represent an interval of three noses, or three times the original of *s* Q. Bisect *s* L in S, making *s* S represent one nose and a half. With the point S for a centre, and for a radius the interval of a nose and a half, (at the distance of S,) which interval in this example equals S *s*; describe an arc for the hinder part of the head, to include the cerebellum. Next find the vanishing point (Art. 195) of all perpendiculars to the plane containing Q L and *e* E, (*viz.* the coronal plane,) and draw through S a line K S towards that vanishing point.

We have now obtained the direction of three lines that belong to three planes perpendicular to each other, (Art. 154, 155,) for the purpose of expressing the length, breadth, and depth of the head; *viz.* L Q, the intersection of the mesial with the coronal plane to express the length; E *e*, the intersection of the maxillary with the coronal plane to express the breadth; and K S representing a parallel to F *s* W, the intersection of the mesial with the maxillary plane. The line K S is producible at either extremity K or S for expressing the depth or distance from the forepart to the back of the head.

The next operation is to cut off from these three lines or their parallels, the required proportions. For this purpose, choose in σ Q some point, as σ, sufficiently distant from the figure not to confuse its outline. Join the vanishing points of the lines K S and E *e*, or of F W and E *e*. Thus will be obtained the vanishing line of the maxillary plane. (Art. 31.) It is, in this example, the horizontal line. Through σ draw a base to this plane. Find now the proportionate length of a nose, or fourth of L Q, at the distance of the point σ. (Art. 39.) In the present example that fourth is the same size at σ as at S or *s*, since Q σ is parallel to the picture. Through σ draw representations, $k \sigma u$ and $\epsilon \sigma \rho$, of parallels to the occipital and auditorial lines, *viz.* to F W or K S, and to E *e*. Then, on the base κw, mark off the proportions following:—

	Number of Noses.	represented by
$\kappa \sigma$	$1\frac{3}{4}$	$k \sigma$ and K S.
$\sigma \epsilon$	$1\frac{1}{4}$	*s* E.
$\sigma \mu$	$1\frac{1}{2}$	σm and S M.
$\sigma \omega$	$1\frac{1}{2}$	$\sigma \rho$, $m \xi$, $m z$, and *ox*.
$\sigma \tau$	$\frac{3}{4}$ or $\frac{1}{4}$ of L *s*	σl, S T, and L *l*.

Observe, that in the transfer of these proportions from $\epsilon \sigma \rho$ and $k \sigma u$ at σ, to the parallel representations at S and *s*, the transferring lines represent parallels to σ Q: so that in case σ Q be not parallel, as in this example it is, to the picture, they must be drawn to the vanishing point of σ Q.

Having thus obtained the point T for a centre of the cerebrum, find T *l*, the representation of S L at the distance of T. (Art. 39.) From T *l* cut off, according to Camper's rule before stated, (Art. 224,) one-ninth part, and, with the remainder as a radius, describe an

* Accordingly, to find the outer corners of the eyes take off an eighth from each extremity of the line which determines their direction. The intermediate portion may then be divided into three eyes.

† This term is familiar to Anatomists. Its Greek derivation ($\mu\epsilon\sigma\sigma\varsigma$, middle) implies its use in dividing the right half from the left throughout the body. Dr. Barclay, in his celebrated Work on muscular motion, has introduced this and many other significant terms contributing essentially to clearness.

‡ The line of the horizon varies in the three examples given. In fig. 7 the horizontal line is *w h*. In fig. 8 it is above the head; in fig. 9 below it: the point C, in the latter figure, being the centre of the picture. The centre of the head's motion is *m*.

Painting. arc for the forepart of the head to enclose the cerebrum.*

(228.) To draw the eyes and features. Let $m\,\sigma$ be the representation of $\mu\,\sigma$, and $k\,\sigma$ of $\kappa\,\sigma$. Through k and m draw $k\,b$ and m B, representations of parallels to σ Q: the former, $k\,b$, in the plane of the forehead, the latter. m B, in the plane of the inner corners of the eyes. Let A B be divided similarly to L Q into four divisions or noses; and through o its centre let X x represent a parallel to e E, the auditorial line. To find the proper length and divisions of X x, let Z z represent a parallel to it drawn through m. Through ρ draw the representation of a parallel to $\sigma\,k$, cutting Z z in z. A line from the dividing point (Art. 85, 102, 133) of z Z will cut the base $m\,\xi$ in ξ. Make $m \cong$ equal to $\mu\,\xi$, and find m Z its representation. Finally, transfer $m\,z$ and m Z to the parallel at o, and you obtain X x, the representation of $\cong\,\xi$. The usual proportional divisions of $\cong\,\xi$ may be then applied to Z z and X x.

The draughtsman will be careful to observe, that of the two corners of the eye, the inner one towards the nose is the more prominent. In other words, a straight line from the outer to the inner corner will not represent a parallel to X x, but will make some angle here represented by $c\,o\,x$. Let that angle be first ascertained, in the vanishing line of the maxillary plane, on each side of the vanishing point of x X. In the present example it is an angle of 5 degrees. Therefore $c\,o$, for the line of the left eye, will vanish at the point graduated 50°, or 5° beyond the vanishing point of x X; while the similar line for the right eye will vanish at the point graduated 40°, or 5° short of the vanishing point of x X. It seems unnecessary to add, that the representation of the parallel to $c\,o$, passing through the eye itself, must vanish in the same point (Art. 76) with $c\,o$.

The facial line comes next to be determined. It belongs to the mesial plane, whose vanishing line in this example crosses the horizontal line perpendicularly at the vanishing point of A L, K S, F W, or G Q, with any of which lines the facial line makes, what Professor Camper styles, the facial angle. In the present example it will be seen, that all the varieties of that angle in the human subject are included between K P G and K F G: K P G for the antique, or Grecian form; K F G for the negro cast. For the antique, a facial line from K, drawn through F W at its point of intersection with A B, will at all times give very nearly the required angle 100°. The representation K G Q being of an angle of 100°, that of G K S will be 95°, F W will give the place of the nose, between which and B let the usual proportion of one-third be taken for the place of the mouth. In drawing the ear, observe the projection of a prominent point in its upper curve at R in the same plane with the auditorial line at E. In this example $\sigma\,\rho$ represents this projection; in like manner, as $s\,e$ represents the projecting interval of the lobe from the axis σ Q. Lines ρ R and ϵ E, representing parallels to the axis, will transfer these required projections, originating from $\sigma\,\epsilon$ and $\sigma\,w$, on the base $\kappa\,w$.

(229.) For the heads of children and aged persons, the rules of Camper will be found equally available. For drawing the heads of children, let a twelfth part of L Q or A B be taken off at their lower extremity for the place of the chin, and the remainder divided into five noses. For aged persons, the curtailment of the chin, and its protrusion beyond the facial line, will mark sufficiently, as has been seen, their peculiarities of facial outline. (Art. 224.) Of Outline

(230.) A similar process will lead to accuracy in delineating the head of any animal.* An example is given (plate viii. fig. 5) in a skull of the common domestic cat.† It is recommended to the student to place the cranium of whatever animal he proposes to study, upon a square board, $a\,b\,c\,d$, in the manner here represented, having the maxillary plane parallel to the plane of the board, and the mesial plane cutting the board in the diagonal $b\,d$. The vanishing point being then found of the auditorial line will be the centre of the vanishing line of the coronal plane. (Art. 145.) Fig. 6 exhibits the same head completed.

This practice adopted for the outline of the heads of various animals will promote general facility and fidelity. The artist, according to his acquaintance with the bones, will proportionably and, almost insensibly, obtain precision in marking the muscular integuments. Nor let him be startled by the multiplicity of forms throughout the animal crania.‡ His difficulties are not greater than are surmounted by an Architect who draws a perspective view of any building. If, previously to an architectural drawing in perspective, the draughtsman be prepared with a ground plan, together with an elevation of the two sides exposed to the spectator, these materials are sufficient for representing "length, breadth, and thickness." In like manner, when a part of the animal edifice is to be delineated, let figures 2 and 3

* Care must be taken, in fixing the proper lengths of the *radii* at S and T, that they be both drawn parallel to the vanishing line of the mesial plane, in order that they may always be both also parallel to the picture. (Art. 80, 123. See also Prob II. and Prob. VII.)

* Mr. Chalon, in a very clever Drawing book, divides the head of a horse into four equal parts. (See plate viii. fig. 11.) He has for this the authority of Stubbs, who in his celebrated Work estimates his proportions from the length of the head. "This length," he says, "is taken from the top of the head to the ends of the cutting teeth, and is divided into four equal parts, each of which is again divided into twelve minutes." *Preface to the Anatomy of the Horse*, by George Stubbs, Painter. Lond. fol. 1766.

† The artist cannot be too familiar with the external bones of the cranium and its neighbourhood. We advise him to examine them with all the zeal of a Phrenologist. We choose for our example the skull of the domestic animal above mentioned, to show that materials for useful study are within the reach of every one. The prevailing taste for Zoological inquiry bids fair to induce a corresponding progress in animal-painting. But without recurring to the growth of foreign climes, examples at home are sufficiently numerous and deserving of artistic examination. In the class mammalia, for instance, not to mention the ordo *bi-manus*, or Man, we have the third, fourth, fifth, sixth, and seventh orders, (as laid down by Blumenbach,) inviting our notice, natural co-tenants of the same native soil with ourselves. In the third order we have the bat. Among animals in the fourth, or *digitata*, we have the mouse and rat, the hare and rabbit, the mole, the dog and fox, and the cat. In the fifth, or *solidungula*, the equus, horse or ass; in the sixth, *bisulca*, the sheep and goat, the ox, the deer; and in the seventh, or *multungula*, (the pachydermata of Cuvier,) we have the pig. (See Lawrence's *Manual of Comparative Anatomy, from the German of Blumenbach*, 8vo. 1827.)

‡ The junction of the head with the neck in quadrupeds is not as in man equidistant from the anterior and posterior extremities of the skull. According to Daubenton, the plane of the foramen magnum in man is nearly parallel to that of the horizon, making with it only an angle of three degrees. But quadrupeds have the occipital foramen and condyles situated further back in proportion as the face is elongated. That opening too, instead of being nearly parallel to the horizon, forms a considerable angle with it, which, measured according to Daubenton, is of 90° in the horse. The weight of the head therefore in these animals is not sustained by the spine, but by a ligament of immense strength, which, in the human subject, is either deficient, or so weak as to have its existence disputed. This is the *ligamentum nuchæ*.

(plate viii) be regarded as two elevations, (fig. 2 for the front and fig. 3 for the profile,) while fig. 4 expresses the ground plan of the head: the several proportions so laid down may be transferred faithfully to the perspective plane and represented as in fig. 5.*

Motions of bones in the region of the head.

(231.) On the *motions of which* the *bones* in the region of the head *are capable*, we again refer our readers to the anatomical portion of this work. The hinge-like motion of the lower jaw upon its condyles admits (in the human subject) of opening the mouth till the distance between the edges of the upper and lower front teeth nearly equals the breadth, when the lips are closed, of the mouth itself. The lateral motion, where lateral motion exists,† is greater or less at the front of the mouth in proportion to the projection of the maxillæ; and according to the order or genus by which any particular animal is distinguished. Birds move both the upper and lower jaws, and their crania require therefore peculiar attention. Respecting the neck, generally, it may be considered in the light of a massive chain of bones, (to the number most commonly of seven in mammalia, and of many more in birds,) each bone linked to its neighbour by intervening ligaments. In the human neck this chain is short compared with that of many mammalia, as the horse, camel, &c. Its average length in man is nearly three noses, or three-fourths of the head; and in front, from the chin to the pit between the clavicles, about two noses. To measure on all sides, in its utmost extent, the motion of this chain of the human neck, we may proceed thus. Either the upper end of it is fixed as when a weight is to be balanced and supported on the head, in which case the lower end, as in plate vii. fig. 3 and 4, is capable of describing the base of a cone equal to perhaps, at the utmost, two noses in diameter. Or else, as happens in ordinary cases, let the lower extremity of this bony chain be fixed. In such cases, the head at the upper end may be said to describe an orbit‡ which would be the base of a cone equal in diameter to the base of the former one. But observe in both cases that as the diameter of the base increases the altitude of either cone diminishes.

Action of muscles in the region of the head.

(232.) The visible *muscles* in the region of the head which regulate its motion are, 1. *temporalis*, passing downward behind the zygoma to the coronoid process of the lower jaw, and pulling the lower jaw upwards, as in chewing food.§ 2. The *masseter*, passing over the insertion of the temporalis, and extending from the cheek bone and zygomatic process of the temporal bone to the angle of the lower jaw, which it also pulls upwards. 3. The *sterno-cleido-mastoid* muscles, which pass upwards from the sternum and sternal end of each clavicle to the mastoid processes behind the ears. By the contraction of one or other of these muscles, the head is turned to one side; by the contraction of both of them, the forehead bends forward, as in bowing.* 4. Observe two muscular columns one on each side of the bones of the neck beneath the *trapezius*, which they contribute to fill out, elevating the head backwards, keeping it erect when raised, and assisting its rotatory motions.†

The other muscles of the head relate to motions of the eyes, eyebrows, nose, mouth, and ears, and of the bone of the tongue, or os hyoides, so called from its resemblance to the Greek upsilon. They will be spoken of when we come to treat of Expression. But besides knowledge of the superficial muscles, the artist will do well to acquaint himself generally, at least, with the course of the blood-vessels of the head and neck; that of the temporal artery, with its transverse and frontal branches; of the facial vein, the jugular, &c.‡ Colour, as well as form, will frequently depend upon his intimacy with these parts of the animal system.

Region of the thorax. Its bones.

(233.) THE REGION OF THE THORAX comes next in order, bounded, in the human subject, posteriorly by the seven uppermost dorsal vertebræ, in front by the sternum, and on the right and left by the scapulæ and the seven true ribs.§ The remaining five ribs partly enclose the abdomen, and may therefore be considered in that separate region. The bones which protrude most, and of which the markings are to be chiefly noticed, are 1. the *sternum*, or breast bone, making, on account of its vibratory motion, an angle with the plane of the topmost ribs that varies (in the human sternum) from 50 to 38 or 40 degrees, according to the extent of exertion in breathing. 2. The *claviculæ*, clavicles, or collar bones, are to be noticed particularly at their extremities; the inner extremities joined to the head of the sternum, the outer to the acromion of the scapula. The clavicles are wanting in most orders of mammalia. 3. The *scapula*, or shoulder-blade, a triangle of different shapes and dimensions in different animals. Observe the ridge called its spine, crossing it like a perpendicular drawn from its angle at the shoulder to its opposite side, which is therefore named its base. Remark also, nearly in the plane of this ridge and of this perpendicular at the angle last mentioned next the shoulder, two processes,‖ having the

---

* In fig. 7 and 8 is given a head of the pig; and in fig. 9 and 10 a head of the horse.

† The lower jaw of the carnivora can only move upwards and downwards, and is completely incapable of that horizontal motion which constitutes genuine mastication. Hence these animals *cut and tear* their food in a coarse manner and swallow it in large portions, which are afterwards reduced by the solvent properties of the gastric juice. Such mammalia, on the contrary, as live on vegetables, have, in addition to this motion, a power of moving the lower jaw backwards and forwards, and to either side, so as to produce a *grinding* effect. In all these, therefore, the form of the condyle and of its articular cavity allows of free motion in almost every direction. The teeth may be compared, in the former case, to scissars; in the latter to the stones of a mill. Lawrence's edition of *Blumenbach's Manual*, 8vo. Lond. 1827, p. 28.

‡ The well-known trick of Harlequin, in Pantomimes, of rolling his head, exemplifies the motion here alluded to. On simple and compound motions of the neck, see L. da Vinci, *Trattato della Pittura*, ch. 484.

§ The semicircular cavity on the right temple of the skulls in plate ii. fig. 7 and 8, is filled up by the temporalis with its fascia.

* In cattle, as in the horse, (see Plate of the Horse muscles,) the levator humeri and the sterno maxillaris perform this office.

† The complexus major, the splenius, and the ligamentum nuchæ, in cattle, form this column. See the Plate of the Horse muscles.

‡ In the horse, the external carotid, or submaxillary artery coming out under the angle of the lower jaw, to climb up over the face, also the jugular where it divides under and behind the ear, are conspicuous.

§ "In almost all the mammalia there are more ribs than in Man. Several quadrumana have fourteen pairs, the horse eighteen, the elephant twenty, &c. Birds have fewer ribs than mammalia, the number, I believe, never exceeds ten pairs. The false ribs, that is, those which do not reach to the sternum, are *directed forward*; the true ones are joined to the sternum by means of small intermediate bones." Blumenbach, *Manual*, p. 46, and p. 63. By the expression "directed forward" is meant that they are nearest to the neck.

‖ The margin (of the scapula) which is turned towards the spine, is the shortest in most of the proper quadrupeds, particularly the long-legged ones with narrow chest, in which the scapulæ lie on the sides of the chest. The coracoid process and acromion, the two chief projections of this bone, are strongest in such animals as have a long clavicle, p. 49, 50.

Painting.

head of the humerus in the glenoid cavity between them: one process, the *coracoid*, on the side of the cavity nearest to the sternum;* the other process, the *acromion*, above and outside of it towards the right or left. 4. The arm, foreleg, or wing, composed of the *humerus*, *radius*, and *ulna*. The two latter throughout the animal kingdom are often found consolidated. In the round head of the humerus observe the bicipital groove.† 5. The hand and wrist composed of the *carpus*, *metacarpus*, and *phalanges*. The articulations of the carpus with the radius (always on the side of the thumb) and with the ulna (always on the side of the little finger) require minute attention.‡

Points, lines, and planes for determining their position.

(234.) For determining the relative position of bones in the region of the thorax; imagine, as before, (Art. 226,) a geometrical solid figure, which will enclose the principal parts. Let this solid be traversed, as was the skull, (Art. 226.) by certain imaginary lines and planes. Thus let *s v* (plate iii. fig. 8) show the angle made by the sternum with the plane of the upper ribs; *viz.* the angle *v s t*; and let *s v* be called the line of the sternum, or *sternal line*. Again, the line *t r* or *s r* joining the top of the sternum to the centre of the first dorsal vertebra, we may term the *sterno-dorsal line*. The plane *u r t v* containing those two lines, (the sternal and sterno-dorsal,) and passing through the body to the back,* dividing the right from the left half, is the *mesial plane*. Also the plane *g h e f*, (fig. 9) at right angles with the mesial, may be termed the *supercostal plane*, giving the direction of the uppermost pair of costæ, or ribs; which plane, in the erect human figure, is nearly parallel to the horizon.

Of Outline.

Sternal and sterno-dorsal lines found in the mesial plane.

Supercostal plane.

(235.) The thorax has been generally compared to a truncated cone. But perhaps its outline would be gathered more satisfactorily by enclosing it within a kind of pyramidal figure (of which a bird's eye view is given in plate iii. fig. 9) having four sides, two of them flat, as *a b h g*, and *d c e f*; the other two curved, as *h b k c e*, and *a l d f g*. The two latter sides indicate the right and the left of the trunk; as the two former indicate the back, and pectus or breast. Let, then, *a b c d* contain a transverse section of the trunk cutting the mesial plane in the line of intersection *m p*, which is intended to represent the distance from the bottom *p* of the sternum to the outside, *m*, of the back, at the spinous process of the seventh dorsal. The sixth pair of ribs will be *b k c* and *a l d*; and *m n* the distance from *n*, between the junction of their cartilages at the sternum, to *m*, the spinous process of the sixth dorsal.

(236.) In order to make as near an approach as may be required, to the curves of these ribs, bisect *m n*. Draw, through the point of bisection, the perpendicular *k l*, on each side of which let the interval *i o* equal the broadest part *e f*, of the sternum, (about the length of a nose,) and make *d c* and *a b* equal to twice *i o*, that is to twice the broadest breadth of the sternum. Next, with *i* for a centre, and *i b* (which will be equal to *a b*) for radius, describe the arc *b k* for part of the curve of the sixth left rib. The arc *a l*, similarly described about the centre *o*, will partly give the curve of the sixth right rib; and the lines *k c* and *l d* will complete them anteriorly. Behind, from *b* and *a*, the outline may be readily curved inwards to the junction of these ribs at S with the sixth vertebra. The outline also of the upper or first pair of ribs, *h e*, and *g f*, will be made nearly correct by taking the point *i* for a centre to form the arc *g f*; and the point *o* for a centre to form the arc *h e*.

The intermediate four pair of ribs may be drawn similarly to the sixth. But observe, that the lines *b h*, and *a g*, show the course of the two convex ridges, always remarkable in the torso,† though sometimes con-

* On reexamining plate iii. fig 8. where *v s t* or *r s q* represents the angle made by the human sternum with the plane of the topmost ribs, we find that *v s t*, or 50 degrees, is the highest elevation of the ensiform extremity at *v*. Consequently, when *v* declines, the angle *v s t* enlarges. We have above inadvertently stated the variation of *v s t* to be from 50 to 38 or 40 degrees. We should have said that the angle varies from 50 to 60 or 62 degrees.

† The metacarpus is elongated in those animals whose toe only touches the ground in standing or walking: and the humerus becomes shorter in proportion as the metacarpus is elongated, so that in animals which have what is called a cannon bone (that is one metacarpal, as in the horse and the ruminantia) the os humeri hardly extends beyond the trunk. Hence the mistakes, in common language, by calling the carpus of the horse his forekaee, &c. p. 51, 52.

‡ The animals with divided claws have some peculiarities in the metacarpus. In the pig those parts consist of four cylindrical bones. In the *pecora*, before birth, there are two lying close together; but they are afterwards formed into one by the absorption of the septum. The horse has a single bone (*gambo*, Vegetius, in French *le canon*, in English the *cannon bone* or *shank bone*,) with a pair of much shorter and immovable ones attached to its posterior and lateral parts, and firmly united to it, (*les poinçons* or *os épineux*, *styloid* or *splint* bones.) The main bone only is articulated to the *pastern*, which may be compared to the first phalanx of the human finger; as the *coffin bone* resembles, in some degree, the third phalanx, which supports the nail. This last phalanx is very various in its form, according to corresponding variations in its horny coverings, which may consist of a flat nail or claw, or hoof, &c. The mammalia generally have as many metacarpal bones as toes, that is never fewer than three, nor more than five, with the exception of the ruminants, in which these bones are in early life consolidated into one, named, as before said, the *cannon* bone. In animals which walk on the tips of the toes, or which use them as organs of prehension, the metacarpal bones are nearly of double length. The foreleg of the horse, deer, sheep, and dog is in truth the metacarpus of those animals: and what is vulgarly denominated the forekuee, is in fact the carpus or wrist-joint. It is, as in the human subject, convex on the side which answers to the back of the hand; concave on the side which answers to the palm. The character of the perfect foretoe or finger is to consist of three rows or phalanges, excepting the first on the radial side, which has only two. In the zoophaga, which have no power of grasping minute objects, the thumb, or first toe, is parallel to the others; and although in the genus ursus, it is of the same length with them, it is shorter in the genus mustela, and in the weasel, the dog, and the cat families. In the latter, the power by which the claws are erected only when required, and at other times thrown back to prevent them from being blunted in walking, must not escape the artist. In the *ruminantia*, the single metacarpal bone is articulated with two digital phalanges, constituting the cloven foot. In the horse, and the other *solidungula*, the two lateral toes have their place supplied as above remarked, only by two bony styles, named the *splint* bones; situated on the two sides of the metacarpal or cannon bone. The three phalanges then of the single toe, comprising the foot of the horse, are, 1. the *pastern* bone or first phalanx, to the back of which are joined two sesamoid bones. 2. The coronet, which is the middle or second phalanx. 3. The coffin bone, being the third or unguinal phalanx, to which is attached the shuttle bone. See plate of the horse.

* The line from the first to the sixth vertebra of the back varies, laterally, so little from a straight line that it is in the above examples taken for one. But the case, as will be seen in the region of the abdomen, is far different with the remainder of the vertebral chain: which is quite as diversified in its motions as the neck, and partakes of similar powers.

† These convex ridges are most conspicuous in the human subject. In quadrupeds, particularly in such as have long necks, the spinous processes of the anterior dorsal vertebræ are so long and prominent for the attachment of the muscles which support the neck as to make any prominency in the ribs less apparent. Minute attention to the *torso of the horse* may be seen in the inside of a well-made saddle. And observe that as these spinous processes are long upon the back for the purpose of supporting a long neck, so also they are much shortened, or altogether deficient in the neck itself, among long-necked animals, (the horse, camel, giraffe, &c.) that they may not prove a hinderance to bending the neck backwards.

Painting. cealed by the scapula. Moreover, the lines *d f* and *c e* show the anterior or pectoral extremity of each rib at its junction with the cartilage binding it to the sternum. With regard to the seventh, and remaining lower ribs, their curves seldom or never protrude beyond *b k c*, and *a l d*. Their lengths anteriorly are represented in fig. 8, and the interval *a b*, given in fig. 9, always continues the same, whatever be the curve of the vertebral chain.

It is evident that the parallelogram, such as *a b c d*, or *g h e f*, (fig. 9,) once found in the case of any pair of ribs, the vanishing line of that parallelogram will determine the perspective or foreshortening of them* whether the ribs be raised, as in this example, by inspiration: or whether, in expiration, a corresponding depression† of them takes place and increases the sternal angle *t s r*, fig. 8.

(237.) The foreshortening of the clavicle may be always known by finding its point of junction with the top of the sternum; and then determining to what plane a straight line drawn from that point to the acromion must, in any given posture of the thorax, belong. In our representation, plate iii. fig. 11, the line of the clavicle describing the arc *a b*, or *c d*, moves in a plane parallel to the supercostal plane. (Art. 234.) In fig. 10, the line of the clavicle describing the arc *e f*, moves in a plane perpendicular to the supercostal plane. For the scapula:—The proportions of the sides of the scapular triangle being ascertained, (see ANATOMY,) and the direction of the ridge called its spine; the revolutions of that triangle on its angle at the head of the humerus are determinable by the position of the arm. (Art. 241, and plate iii. fig. 12—16.)

Line of the upper arm. (238.) Other imaginary lines will be found useful: for example, a line from the centre of the head of the humerus, to a point in its lower extremity, between the ulna and radius. This may be termed the *line of the upper arm*.

Line of the forearm. A line from the last-mentioned point to the articulation of the radius with the os lunare of the carpus, or in other words, with the central bone of the wrist, may be termed the *line of the forearm*. It forms a longitudinal axis upon which the wrist turns in pronation and supination. See the second note to Art. 240.

Carpal axis. Perpendicular to this last line, at its junction with the wrist, is a line from the styloid process of the ulna through the styloid process of the radius. This is a transverse axis upon which the wrist turns in waving the hand. It may be called the *carpal axis*. The carpal axis is always the intersection of two planes, one of which contains the line of the forearm, and the other is

Of Outline.

Metacarpal plane. The *metacarpal plane*, passing through the carpus, between the back and palm of the hand, to the extremities of the metacarpus, and containing the tips of the knuckles of the two middle fingers.

(239.) By these or similar lines* (for many other and better devices will constantly present themselves to the practised artist) the foreshortenings of the limbs of the thorax may be obtained. For example, the line of the upper arm, and the line of the lower arm may always be considered in the same plane; of which plane, if the vanishing line be determined, the proportions, or foreshortenings, are easily calculated from knowing the dimensions (previously agreed upon) of the clavicle, or any standard interval, as the length of a head or a nose at the distance of the point of the shoulder. That the application also of some such system of imaginary lines must be found serviceable in delineating the thorax and brachia of quadrupeds, and of animals generally, may be inferred from plate vi. fig. 5 and 6, illustrative of locomotion. But such a system must not be over-rated. It must be applied only to the skeleton, only to the bones: only to the rafters, joists, and framework, so to speak, that support the exterior animal structure. Any other adaptation of such a system would induce a still, artificial, and lifeless manner, utterly inexpressive of character and of sentiment.†

* It must, however, be borne in mind, that, in cases of contortion caused by pain or otherwise, as well as of some ordinary inclinations of the spine, the ribs, particularly those towards the abdominal region, will approach and even overlap each other on whichever side the inclination of the spine is made. Thus in walking, or standing on one leg, that side is always shortest towards which the body leans, in order that its centre of gravity or weight may be transferred to some point directly over the supporting limb; while the other side (namely, that of the leg which is being bent and lifted forward to make another step) is proportionably lengthened. Both sides are curved, but the outside curve will, of course, be the longer of the two. See for further examples in carrying weights, &c. Da Vinci, *Trattato della Pittura*, cap. 195—214.

† The direction of the ribs anteriorly and posteriorly is not in planes parallel to each other, but inclined to the spine at different angles; the topmost pair nearly at a right angle; the remaining lower ones at various angles of inclination increasing in acuteness as they descend to the last pair called floating ribs at the back of the abdomen. In proportion to the acuteness of their angle of inclination to the spine is their mobility and capacity of being depressed, elevated, or made to overlap each other.

* Among the most difficult outlines of the upper extremities will be found that of the human thumb, owing to that extensive range of motions which so justly obtain for it from Albinus the title of *manus parva majori adjutrix*, as the human hand has from Aristotle that of *the organ of all organs*. The thumb has the power of describing at the same time round two different apices a conical motion, 1. round its point of junction with the carpus; 2. round the point where its metacarpal bone joins the carpus.

† A work, in folio, of Juan d'Arphe y Villafañe, republished at Madrid in 1773 (a sixth edition) by Pedro Enguera, has unfolded to us much curious and some useful matter on the proportions and *foreshortenings* (*los escorzos*) of the human figure. The author, after referring briefly to the principles of drawing given in the writings of Pomponius Gauricus and Albert Durer, and of the improvements afterwards effected by Pollaynolo, Bandinelli, Raffaelle, Andrea Mantegna, Michel Angelo, and others through their introduction of the antique model, proceeds to mention the divisions which existed in the different Schools of Art, particularly in Spain, (some adhering to the old, others adopting the then new system,) until the abilities and influence of Gaspar Becerra (see his name in our short notice of the Spanish School) introduced generally among his countrymen the good taste he had acquired and formed in Italy for the Greek and Roman beautiful. At page 173 of this singular book, and towards the conclusion of some instructions written in rhyme, for delineating the human figure, is the following in prose, of which we will here attempt a translation. It professes to be adopted from book iv. of the *Symmetria* of Durer.

"In order to make the foreshortenings alluded to, in drawing large figures, and where the eye of the spectator cannot take in the entire parts, procure a rule about the length of the intended figure, mark it off into ten equal divisions, and again divide each of these ten into three, so that the whole length may, with the addition of one, serve to measure thirty-one subdivisions. The proper length may first be laid down of each portion or member of the figure, and afterwards the breadth, as follows. Let the length of the head be four (including three for the face) out of the thirty-one parts; that of the neck one part, of the trunk from the line of the shoulders to that of the symphisis pubis eleven; of the femur seven. For the length of the leg seven more, to which add the one remaining subdivision for the distance of the highest part of the foot (between the ankles) from the ground. You will have now completed the height of the figure. Next, for the arm from the axilla or armpit (*sobaco*) to the hand, nine parts; for the length of the hand three; from the armpit to the acromion or point of the shoulder two parts: so far the length.

Motions of bones in the region of the thorax.

(240.) Among the *motions of which the bones* in the region of the thorax *are capable*, that of the sternum has been noticed. (Art. 233, 234.) During *inspiration*, or the act of taking breath, the thorax is dilated; the ribs raised and drawn outwards to the right and left, pressing the lower portion of the sternum forward, while its upper extremity between the clavicles remains fixed; and thus decreasing the angle *r s q* or *v s t* (plate iii. fig. 8) made by the line of the sternum with *r t*, the sterno-dorsal line. In *expiration* the contrary motions are produced. The ribs fall. The sternum sinks. The sternal angle *v s t* increases.

The motions of the human arm* and hand† are analogous to those of the wing in birds,‡ and of the foreleg in quadrupeds; but infinitely exceed them as to number and variety. There are five principal kinds of motion in the human arm, which have been denominated, 1. *Propulsion*, (pushing or striking.) 2. *Tractation*, (dragging or pulling.) 3. *Constriction*, (embracing, *viz.* the act of closing forcibly, sometimes one or both arms, sometimes one or both hands.) 4. *Diduction*, (forcible separation of those members as in swimming.) 5. *Circumduction*, an act confined to the head of the humerus, so placed as to admit of describing, backwards, forwards, or sideways, a conical figure, of which a point within the glenoid cavity is the apex, while another point between the condyles describes the base.* Let the reader endeavour to draw with chalk a circle on a wall either in front of, or to one side of him. This will exemplify circumduction. The motion of the wrist (known to fencers in changing its position from carte to tierce, or *vice versâ*; and by anatomists called pronation and supination†) is, in part, rotatory.‡ The phalanges of the thumb and fingers have likewise at their junction with the metacarpus a degree of rotatory action, though otherwise they have only a similar motion to that of the elbow during flexion and extension of the arm, *viz.* a hinge-like motion, as in opening and shutting the hand.

(241.) But we have yet to notice the motions of two other bones which contribute essentially to vary the position and outline of the humerus. These are the clavicle and the scapula. The clavicle may be said to describe a small cone, of which the apex is at its junction with the top of the sternum. Its outward extremity, joined to the acromion, either rises, as in shrugging; or retires, as in throwing back the shoulder; or comes forward, as in the case of persons vulgarly termed round shouldered. The extent of the arc described by the

---

"Next as to breadth. Let the head in front be three parts broad, and the same behind. In profile (*por el lado*) let its breadth measure four; for the breadth of the neck take two parts, of the trunk at the shoulders, eight, and of the same in profile, five; of the trunk at the armpits, six, and of the same in profile, five; of the waist five in front, and four in profile; of the haunches six in front, and five in profile; of the femur, at its upper and thickest end, three in front, and three in profile; of the knee two parts in front, and the same in profile; of the calf two and a half in front, and the same in profile; breadth at the ankles one part in front, one and a half in profile; breadth of the foot one part at the heel, and four for the foot in profile, *viz.* for the whole length of the sole. After this measurement proceed to give roundness to the figures by suitable muscular boundaries. Breadth of the upper arm, at its middle, in front one part and a half, in profile two parts; of the forearm at its thickest end, two parts in front, of the same in profile one and a half; of the wrist, one part in front, and three-fourths of one part in profile; of the hand, two in front, and one half in profile." (See plate vi. fig. 7.)

The above quotation is the more available for our method of fixing certain imaginary lines, since each of the thirty-one subdivisions measures a nose, or fourth part of the length of a head. (Art. 222. 227.) The front of the neck, it will be observed, is here made one nose in length, (which is also the proportion in Camper,) whereas we have given it in Art. 231, a length of nearly two noses. Perhaps our measurement is only proper for certain subjects; but the student will find in nature as great diversities. Again, with respect to the head, we make the breadth of the cerebellum to that of the cerebrum as nine to eight, (Art. 224. 227,) whereas according to the above scale their breadths are equal. This seldom happens, as the student may at any time prove to himself, with a pair of callipers, upon the heads of his acquaintance. Of the changes made by age in the proportion of the figures, see Da Vinci, *Trattato della Pittura*, cap. 57. 167—169. 173.

* Observe that the upper arm and forearm when stretched out never form one and the same straight line. This arises from the structure of the elbow, at which there is always more or less an angle. Neither is the hinge-joint of the elbow so placed as to be perfectly at right angles with the plane of the upper arm on which it hinges; but the ulna moves obliquely upon its hinge, so as to permit the forearm to be drawn forwards over the breast while the elbow remains close to the side.

† Let a straight line from the centre of the outer condyle of the humerus be drawn to the centre of the wrist, for the axis of the forearm and hand in pronation and supination. Let another straight line, at right angles with this, be drawn through the lower extremities of the cubit joining the radius and the ulna. On the latter line, the axis of the wrist, the carpus turns, as on a hinge, either alternately from side to side with a rudder-like motion; or alternately up and down, like a wing, according to the position of the forearm. (Art. 238.)

‡ The bones of the wing may be compared, on the whole, to those of the upper extremity in Man, or the quadrumana, and consist generally of an os humeri; two bones of the forearm; one of the carpus; one bone of the thumb; and two fingers, of which that which lies towards the thumb consists of two phalanges, the other only of one. Blumenbach's *Manual* by Lawrence, p. 64.

---

* *Centrum ceu fulcimentum ossis humeri vel femoris existit præcisè in medio illius tuberculi qui in sinuosâ cavitate scapulæ, vel coxæ immobilis infigitur et colligatur.: et hisce duobus articulis extremitas semidiametri mobilis, ejusque centrum est prominens et exporrectum: e contra centrum semidiametri circumductionis cubiti existit extra cubitum in medio, nimirum tuberculi humeri quiescentis, cui ille alligatur et* circumvolvitur; *et idem dicendum est de reliquis similibus articulationibus.*

Notandum pariter est, quod motus articulorum aliquando sphærici sunt, aliquando in uno plano ulicujus circuli, multoties in superficie conicâ *existant. Regula generalis esto, quotiescunque motus unius ossis undequâque fieri potest circa unicum punctum fixum, tunc quidem motus sphæricus erit; scilicet ad dextram, ad sinistrum, sursum, deorsum, antè, et retrò; quoties vero motus fieri debet circa duos polos; vel circa axem necessario motus et circumductio, aut in superficie planâ circulari, aut in superficie conicâ efficietur.* Borelli *de Motu Animalium*. 2 vols. 4to. Romæ, 1670; Pars 1ma. c. 4. prop. ix.

According to this quotation, it should seem, that, since in the case of *circumduction*, as above illustrated, the revolving point between the condyles has power of describing the base of a cone in various directions, (*ad dextram, sinistram, sursum*, &c.) its motion might, perhaps, more strictly be termed spherical. But either term, "conical" or "spherical," will express nor meaning. As we regarded a circle (Art. 181) in the light of a regular polygon with its sides composed of indefinitely small chords: so may the surface of the sphere be considered as composed of an infinite number of small bases of cones having equal *axes* and dimensions and a common apex in the centre of the sphere.

† In *supination*, the bones of the radius and ulna are situated in lines parallel to each other. In *pronation* the lower end of the radius where it joins the hand is carried over and round the ulna, so as to cross it and form a very acute X, of which one line (the line of the ulna) will extend from the wrist (on the side of the little finger) up to the olecranon, or point of the elbow. The other line (or line of the radius) will be extended *over* it, (or *under* it when the arm is thrown backwards,) and will be extended from the wrist on the side of the thumb, up to the outer condyle of the os homeri.

‡ In the zoophaga the radius and ulna, though separate, are void of rotatory motion; and the olecranon, or projection of the ulna at the elbow, is compressed and continued further back than in Man. In the pachydermata, as the pig and elephant, the radius is before and the ulna behind, and though distinct, there is no rotation. In the ruminants the ulna is united immovably to the radius, and in the solidungula, as the horse, it is represented by an olecranon adhering to the posterior surface of that bone.

clavicle and acromion is partly shown in plate iii. fig. 10, 11. In fig. 10 the motion from *e* to *f* is in a plane perpendicular to the mesial plane. In fig. 11 the motion from *a* to *b*, and from *c* to *d*, is in a plane parallel (when the subject stands erect) to the horizon.

The scapula assists, follows, and indicates in its motion the track of the humerus and clavicula. Its position when the arm hangs by the side is with its base parallel to the eight upper vertebræ of the back. In this position it lies over all those eight ribs, except the first, which is too small to reach it.* When the arm is raised, as preparatory to striking a blow, the scapular triangle turns upon the acromion as upon a pivot. Its inferior angle is drawn upwards and outwards along the side, and its superior angle downwards and backwards from the second rib as far as the fourth. When the blow is being struck, the scapula retraces rapidly its course: and if the arm is driven far behind, and with the elbow near the back of the person striking; the triangle undergoes a yet further change, and has its inferior angle drawn upwards and backwards, till it approaches the vertebral column. An attempt is made to illustrate this in plate iii. fig. 12—15. These motions of the scapula are distinctly observable in the living subject.

Action of muscles in the region of the thorax.

(242.) Of the marked and leading *muscles* in the region of the thorax, it will not be expected that we do much more than again refer the reader to our pages on Anatomy. The pictorial student will find it useful to class the thoracic muscles according to two perfectly distinct functions performed by them; and to consider separately, 1st, such as are concerned in breathing, and 2dly, such as give motion and power to the adjoining limbs. Although breathing in general is an involuntary act, yet many cases occur when by a strong effort of the will a larger portion of air is taken into the lungs than usual.† This happens whenever any great weight is either to be resisted, pulled, or lifted; or in striking a heavy blow; throwing any missile to a distance; calling loudly; calling with a protracted sound or succession of sounds; or, lastly, in circumstances of pain or surprise, or any sudden transport of passion.‡ Notwithstanding that the muscles which are principally concerned in inspiration, or the act of *taking* breath, are concealed from view, *viz.* the *diaphragm*, the *intercostals*, the *serrati postici*, &c. (concealed in front by the *pectorales* and other muscles; concealed on the back by the *trapezius*, and *latissimus dorsi*, &c.) yet they contribute, by dilating and raising the ribs, protruding the lower end of the sternum, and lessening the sternal angle, (Art. 234, 240,) to give greater prominency to the outward and visible muscles of the thorax.*

---

* In the horse, the point of the scapula close to which the humerus attaches, is between the first and second ribs; the base at its hinder part, reaches as far back as the seventh rib. The scapula, consequently, lies in a slanting position along the chest.

† For an account, in popular language, of the process of breathing, see in the *Library of Useful Knowledge*, already referred to, the Treatise on *Animal Physiology*, p. 95.

‡ The abdominal muscles contribute essentially to assist their neighbours in the higher region of the thorax during the process of inspiration. "There are few motions or attitudes of the trunk," says Dr. Barclay, "or compressions of the viscera in which these muscles" (the abdominal) "are not concerned as moderators, motors, or directors. The state of respiration is not only varied according to their different functions, but made to contribute to the steadiness and energy of their exertions. Thus in their vigorous exertions to change or preserve the attitudes of the trunk, or compress the viscera, the ribs are previously somewhat raised, or drawn *atlantad*," (toward the *atlas* vertebra, *i. e.* upwards,) "and are made to resist, as fixed points, the motion *sacrad*," (toward the *sacrum*, or downwards,) "with more than usual steadiness. This steadiness, however, does not proceed, or proceeds but little, from the intercostals. These muscles, opposed by the great pressure of the atmosphere from without, have not strength to elevate the ribs, unless assisted by a great pressure of atmosphere from within. The abdominal muscles, always favoured by the pressure from without, would, with no great exertion, depress the ribs and expel the air, while the intercostals would have no power to prevent its egress. To account, therefore, for the more than usual stability of the ribs in cases of extraordinary exertion, we must have recourse to those muscles by which the egress of the air is prevented, or by which the quantity issuing from the lungs in a given time is accurately regulated. These are the muscles of the os hyoides, of the cartilages of the larynx, of the velum pendulum, of the tongue, and of the lips. By them the passages through the larynx, isthmus faucium, mouth, and nostrils, may be widened, narrowed, or entirely shut; or one passage shut, and another opened; or the whole of them shut, and the whole of them opened, as the will directs, and as circumstances require. These muscles retaining the breath after full inspirations, or regulating the quantity that issues in a given time during expiration from the lungs, cause the air in the lungs to afford that support or stability to the ribs which enables the diaphragm and abdominal muscles to act with steadiness and energy in giving attitude and motion to the trunk. As mental emotions, too, do not unfrequently extend their influence to respiration, so the same muscles make respiration to extend in its turn its influence to the mental emotions. Hence we see that persons under surgical operations hold hard their breath, trying, as it were, to lessen their sufferings or to confirm their resolution in supporting them. A fact too obvious to have escaped the admirable Shakspeare, who makes Henry say, addressing his soldiers at the siege of Harfleur,

> 'Now set the teeth, and stretch the nostril wide,
> Hold hard the breath, and bend up every spirit
> To its full height.'

As respiration is thus made to favour the motions and attitudes of the trunk, so these motions and attitudes are made, in their turn, to favour respiration." *Muscular Motions of the Human Body*. By John Barclay, M. D. Edinburgh, 1808, p. 535.

* Those internal muscles have likewise powerful assistance from without, in a corresponding arrangement, as occasion may require, of the adjacent parts of the body. The power of the *serrati postici superiores* to move the ribs is increased by bending the neck forwards. This inflection, together with that of some of the dorsal vertebræ, gives to the trapezius, the rhomboideus, and the levatores scapulæ an extent of action on the scapula. The consequent elevation of both scapulæ renders further assistance for raising the ribs available not only from the serrati magni, but from the subclavii, the serrati antici, the pectorales, and latissimi dorsi. The three last-mentioned pairs will be visible to the student upon the living figure, and sufficiently distinguishable. Let him, for an example, observe the pulmonary cough of a consumptive person, or watch any one in the act of sneezing. The scapulæ of that person are drawn upwards and forwards; (Art. 241;) the shoulders rounded; the head and neck placed in positions most favourable to those muscles which enlarge the thorax and admit a fuller supply of air to the lungs. For another example, let a race-horse be observed at full-speed, extending his neck forwards as far as he is able, that the air passages may be straight and the quantity of air inspired as large as possible. Another reason for this action in quadrupeds, when they run, is, that their centre of gravity, or weight of the whole superincumbent body, may, by this position of the head and neck, be thrown forwards, and thus their rapidity in running be considerably increased. It will be seen, too, (see our plates of the Horse,) that the *levatores humeri* muscles (in cases where the animal has not breath for running, or even for walking or lying down, and therefore most stand) have a use in assisting the lungs, similar to their use in the case of a consumptive human subject. The artistic reader will, perhaps, be here obliged to us for extracting and combining, in the form of a note, some particulars of the muscles above alluded to belonging to the Horse.

1. The *sterno maxillaris*, of no great bulk or strength, and lying immediately under the skin, bends the head towards the chest.

1. Arising from the cartilage in front of the breast bone, (sternum,) changes, at about three-fourths of its length upward, to a flat tendon to be inserted into the lower jaw.

2. *Levator humeri* is much larger than the last mentioned, having more work to perform.

2. Arising from the occiput and four first bones of the neck and from the *ligamentum nuchæ*

(243.) With respect to the muscles which give motion to the limbs of the thorax,* the student will naturally class them according to the parts which they move, and the direction in which the movement is made. For the *humerus*, for the *forearm*, and for the *hand*, peculiar muscles are required. We have already mentioned (Art. 241) the variations in the position of the acromion, or extremity of the clavicula, near the head of the humerus, which change from time to time the centre of rotatory motion in the human arm.† The conical motions of the humerus round that centre, or middle point in the glenoid cavity, (Art. 240,) will be effected *upward* and forward by the deltoides, the biceps brachii, and pectoralis,‡ *upward* and backward by the deltoides and trapezius,* *upward* and outward (*i. e.* to the right or left in a plane perpendicular to the mesial plane) by the deltoides, the infraspinatus, and the teres minor. The *downward* motions (which are always assisted by the weight of the arm) are directed forward by the pectoralis ;† backward by the trapezius, the latissimus dorsi, the longus. or long head of the triceps, the teres major,‡ and the infraspinatus ; and downward generally by the lower portion of the pectoralis, jointly with the action of one or more of the others.§

Muscles for moving the humerus.

Its office is twofold. Suppose the animal standing, and that his head and neck are fixed points, the contraction of this muscle will draw forwards the shoulder and arm. Or, if the horse be standing, and the shoulder and arm be fixed points, this muscle will depress the head and neck.

On its way down to the shoulder it mixes itself with some of the muscles of the shoulder, and is inserted into the humerus.

3. *Trapezius*, a quadrangular muscle, like that of the same name and similar office in the human subject, lies between the withers and upper part of the shoulder-blade. It is for supporting or raising the shoulder, and drawing it at the same time backward.

3. Arising broad and strong, from the longer bones of the withers and from the ligament of the neck, (note 3 to Art. 232,) becomes narrower below till it terminates nearly in a point to be inserted into the top of the spine, or ridge of the scapula.

4. *Serratus major*, the great saw-like or tooth-shaped muscle of immense power, fills up the greater part of the neck at its lower extremity. This muscle attaches the shoulder to the chest, and thus supports the weight of the body. When the quadruped is standing this muscle occasionally discharges another important function. Since by the weight of the body, the shoulders and legs are then rendered fixed and immovable, the serratus major, no longer employed to raise the limbs, exerts its power in *enlarging the cavity of the chest*, and thus materially assists in the act of breathing. It is on this account that a horse labouring under inflammation of the lungs will obstinately stand night and day that he may obtain the assistance of this muscle in respiration. The power also of the *serratus major* in obviating concussion, is of immense importance to the Horse as well as to his rider. Its action, with that of the other muscles attached to the inner surface of the scapula, has been well compared to that of the springs of a carriage, but possessing infinitely greater steadiness, mobility, and strength. These muscles yield, as far as necessary, to the force or superincumbent weight. By *gradually* yielding they subdue the violence of the shock, and through their elastic properties, immediately regain, when the shock is over, their original position.

4. Arising from the five lowest bones of the neck and the two first ribs. Its lower portion springs from all the true ribs. Its fibres all tend downwards, and are inserted into the *inner* surface of the shoulder-blade or scapula, *i.e.* between the scapula and the ribs.

* The true quadrupeds have the front of the trunk supported by the anterior extremities, which are consequently much larger and stronger than in Man ; as the hind feet of the same animals yield in these respects to those of the human subject. The chest is, in a manner, suspended between the scapulæ ; and the serrati magni, which support it in this position, are, consequently, of great bulk and strength. When viewed together, these muscles resemble a kind of girth surrounding the chest. Blumenbach, *Manual*, p. 309.

† The motions of the humerus (plate iii. fig. 12—15) are all regularly accompanied by corresponding motions of the scapula, the head of which, excepting in the rotatory motion, generally follows the motion of the humerus. See Barclay *On Muscular Motion*, p. 385. 387. For the deltoides, the biceps, &c. consult the Hæmon, the Gladiator, and the Hercules Farnese.

‡ The pectoralis in birds is chiefly employed to move the wings in flying. It is very large, (sometimes so large as to outweigh all the other muscles together,) and consists properly of three muscles, the pectoralis major, medius, and minor, which fill the sides of the crest of the sternum. The keel of the sternum, the fork, (merry thought,) and the last ribs give origin to the pectoralis major ; its insertion is into a rough, projecting line of the humeros. By depressing that bone, the pectoralis produces the strong and violent motions of the wing, which carry the body forwards in flying. The middle pectoral (or medius) lies under this ; and sends its tendon over the junction of the fork, with the clavicle and scapula, as in a pulley, to be inserted in the upper part of the humerus, which bone it elevates. By this contrivance of the pulley, the elevator of the wing is placed at the under surface of the body. The third, or lesser pectoral muscle has the same effect with the great pectoral in depressing the wing. Blumenbach's *Manual* by Lawrence, p. 311.

* A backward motion of the arm may be of two kinds, according to the motion which has preceded it. 1. If it has been preceded by, and is the continuation of, an *upward* motion, the deltoides and trapezius are assisted by the supraspinatus, infraspinatus, subscapularis, biceps brachii, coracobrachialis, and the clavicular portion of the pectoralis. 2. But if the arm has been previously hanging at the side, or if there has been first a downward movement, previous to the intended one backward and upward ; the backward motion, which is to follow in continuation of the other, will be made by the help of the teres major, teres minor, longus, (or long-head of the triceps brachii,) and by the latissimus dorsi.

† A motion of the arm forwards may be also of two kinds, according to the motion which it follows. 1. If it succeeds to an upward and backward motion, as after the arm has been raised to strike a heavy blow, the subsequent movement forwards will put into action not only the pectoralis, but the teres major, teres minor, the longus. and the latissimus dorsi. 2. If, on the contrary, it follows a quiescent, pendulous state of the arm, or follows a motion downward and backward. (such as the preparation to throw a cricket-ball in bowling,) the movement of the humerus in throwing will be effected by the muscles which *lift* the arm *forwards ;* the deltoides, biceps brachii, subscapularis, trapezius, &c. with the clavicular portion of the pectoralis.

‡ The teres major forms with the latissimus, the edge of the armpit. Both muscles are well shown in the Fighting Gladiator, which, together with the Laocoon, are the finest illustrations of brachial movement.

§ Several more are concerned directly or obliquely in these motions. For the sake of illustration let us compare the humerus to the spoke of a carriage-wheel, such as described in Art. 177. Suppose the spoke nearly perpendicular to the ground, with its outer extremity downwards, as must be the case with the humerus while the arm hangs at the side. If the carriage be drawn forward, the outer extremity of the spoke will turn on the axis in a continued curve : first backwards and upwards, then forwards and downwards. Let the carriage be now stopped, and let one side of it be raised from the ground so as to suspend the spoke in question perpendicularly : and let the same motion of the wheel be repeated. It will represent and illustrate, in some degree, a rotatory or conical motion (see the fourth note to Art. 240) of the humerus. This motion, by which the arm is *lifted backwards* from below, is effected by the teres major, the teres minor, the longus, or long head of the triceps brachii, and by the latissimus dorsi, regulated by the deltoides and pectoralis.

Let now the wheel be whirled round in the opposite direction, namely, such as it would take in *backing* the carriage ; this motion will also represent a rotatory movement of the humerus, but quite the reverse of the former one. In this movement the humerus will be *lifted forwards*, and consequently be put in motion by the deltoides and trapezius, assisted by the supraspinatus, the infraspinatus, the subscapularis, the biceps brachii, the coraco-brachialis, and the clavicular portion of the pectoralis. Both these motions of the humerus may be familiarly exemplified in the two ways of cracking a whip over or under the hand ; and the reader will find innumerable examples from observations of his own, on any athletic exercise of the arm in rowing, swimming, fencing, &c.

Painting.

Muscles for moving the forearm

(244.) The four motions of the cubit, or forearm, namely *pronation*, *supination*, *flexion*,* and *extension*, are produced as follows: 1. Pronation, by the pronator teres, (or rotundus,) aided by a muscle entirely concealed, *viz.* pronator quadratus.† 2. Supination by the biceps brachii and the extensor pollicis aiding the supinator brevis, which, like its antagonist the pronator quadratus, is out of view.‡ "The supinator longus cooperates with and moderates alternately the pronators and supinators, bringing the radius to that middle state, which is properly neither pronation nor supination, and performing the office with the greatest force when the arm is extended."§ 3. Flexion is performed by the brachialis internus, the biceps brachii, and the supinator longus.‖ The biceps being an extensor of the humerus, (Art. 243,) will, in this instance, act with more force when the humerus is inflected than when it is extended, *i. e.* lifted forwards or outwards; and will at the same time meet with less resistance from the long or scapular head of the triceps. 4. Extension is the duty of the triceps brachii and of the anconeus. Neither of these muscles is inserted in the radius. The longus, or long head of the triceps, being also a flexor of the humerus, (Art. 243,) will act less forcibly upon the ulna, when the humerus is extended or *lifted forward*, than when it is inflected or *lifted backwards* from below.

Muscles for moving the hand.

(245.) The hand, consisting of the carpus, metacarpus, and phalanges, follows, in the human subject, the motions of pronation and supination above described, which originate in the forearm. The tendons and muscles, therefore, peculiar to the hand may be considered apart from those of pronation and supination, and are usually divided into flexors, extensors,¶ abductors, and adductors.** The flexors and extensors of the *carpus* take their names from their position relatively to the bones of the radius and ulna: the *radiales* on the side nearest the thumb; the *ulnares* on the side nearest the little finger. The flexors lie, as their office must indicate, on a line with the palm; the extensors in a line with the back of the hand. The former, three in number, come out from their joint origin at the inner condyle of the humerus; and run close together along the forearm, beside the supinator longus: *viz.* the flexor radialis, the palmaris, and the flexor ulnaris. The extensor muscles also consist of three: two on the same side with the thumb, *viz.* the extensor carpi radialis longior,* and the extensor radialis brevior; and one on the same side with the little finger, *viz.* the extensor ulnaris.

Of Outline

For the *fingers* the flexors are the perforati and the perforantes, called also the sublimes and profundi, together with the flexor brevis of the thumb. The little finger has, moreover, an inflexion caused by the flexor carpi already mentioned. The extensors are six, *viz.* three extensores pollicis, one of which extends the metacarpal bone of the thumb; the other two its first and second joints: fourthly, the extensor digitorum communis: fifthly, the indicator:† and lastly, the extensor minimi digiti. The *opponens* muscle of the thumb has the important office of applying the thumb with the nicest precision to the tip of any one of the fingers.

It is to the thumb and fingers that the remaining muscles called abductors and adductors belong. These are antagonists to each other, and in the thumb are found on each side of the flexor brevis. The interossei and lumbricales are *ad*ductors of the fingers, assisted sometimes by the perforati and perforantes.‡ On the other hand, when the extensor communis is made to act on all the fingers, they become *ab*ducted, and are seen to diverge like radii from a centre.§

---

* In birds, two muscles act as flexors, which hold a situation corresponding to that of pronators. This shows how much inflexion and pronation are connected, the latter being substituted for the former.

† To these Barclay adds the radialis internus, the palmaris longus, and the flexor sublimis, observing that these only act at the commencement of the pronation; and that their power is increased the more according as the hand maintains a greater previous tendency to supination. Also that the power of the sublimis must be further increased in cases where the fingers are extended. Observe that the two pronators (teres and quadratus) are present in the quadrumana and in all carnivorous animals, but are wanting in the chiroptera, ruminantia, and solidungula.

‡ The first of these three acts with the greatest force when the humerus is inflected, (*i. e.* has been drawn backwards from below;) and the last acts with the greatest force when the carpus and thumb are inflected *thenad*, (*i. e.* towards the hollow of the hand.) Barclay *On Muscular Motion*, p 398.

§ Barclay in *loc. cit.* In animals of the dog and cat kind the supinator longus is wanting. The brevis is present. Both are absent in the chiroptera, rodentia, pachydermata, ruminantia, and solidungula. Also both are absent in all birds. (See COMPARATIVE ANATOMY.)

‖ To these are subjoined by Barclay the ulnaris internus, the palmaris longus, the pronator teres, the radialis internus, and the flexor sublimis. These five muscles, he observes, are flexors only to a small extent, and only at the time when the motion commences, before the lever of resistance is shortened. The four last must have their power a little increased when the arm is placed in a state of supination, and when, consequently, the biceps is somewhat relaxed.

¶ No other but the extensor digitorum communis is common to Man and all the quadrupeds. To extend the fore pastern, the horse has two extensores proprii on the side of the extensor communis. They are assisted by a third extensor between the communis and the extensor of the pastern. The extensor proprius indicis is wanting in the rodentia, ruminantia, and solidungula. The genus felis, canis, and ursa, and the genus lepus have the extensor longus pollicis, but want the extensor brevis. The ruminantia and solidungula have both.

** The short muscles of the hand which produce flexion, abduction, adduction, and opposition, are altogether wanting in the lower animals. The muscles of the lower animals are generally less in number than those of Man. The deficiency is most frequent among the inferior orders of *Mammalia*, and still more in birds. Muscular varieties occur chiefly in the organs of locomotion. Throughout the entire class of birds the following muscles are absent, and may here be mentioned together. The diaphragm, recti abdominis, pyramidales, the dorsal muscles of the spine, splenius, brachialis externus, or third head of the triceps, the supinator of the forearm or wing, and short muscles of the hand and fingers, as already stated; quadratus lumborum, psoas parvus and magnus, iliacus internus, obturator externus, and extensor longus pollicis pedis.

* The peculiar projection of this muscle from under the supinator longus may be well studied both from the antique and from the Cartoons of Raffaelle.

† The indicator assists the extensor communis in enabling all the joints of the forefinger to point at any thing. Hence its name.

‡ Hence it happens that during flexion, the fingers can never be separated so widely as during extension. On the different appearances of the muscles in the hand and arm in the action of opening or shutting the hand, see Da Vinci, *Trattato della Pittura*, cap. 176. The action of the flexors in bending the fingers gives an enlarged appearance to the wrist, observable in the left hand of the Apollo and the right hand of the Gladiator.

§ The thumb in the simiæ is small, short, and weak; the other fingers are elongated and slender. Other animals which have fingers sufficiently long and movable for seizing and grasping objects, are obliged, from want of a separate thumb, to hold them by means of the two forepaws; as the squirrel, rat, opossum, &c.; those, moreover, which are obliged to rest their body on the forefeet, as the dog and cat, can only hold objects by fixing them between the paw and the ground. Lastly, such as have the fingers united by the integuments, or enclosed in hoofs, lose all power of prehension. We advise every artist who loves truth of outline to attend a dissection of the human arm and hand, as well as of the parts analogous in the forearm, claws, hoofs, paws, &c. of animals generally. He

(246.) THE REGION OF THE ABDOMEN was, lastly, to come under notice. For its posterior boundaries in the human subject we proposed the five lower dorsal and the five lumbar vertebræ,* increasing in breadth and thickness as they descend, and resting on the os sacrum as a column upon its base; from which are stretched to the right and left the strong bony arches of the ilium, one to the top of each femur. Five ribs, called false ribs, protect each side,† while a third arch of bone in front (the ossa pubis) joining the other two lateral or iliac arches, and below it the two angular bones (ossa ischii) on which the figure rests when sitting, complete the abdominal outline of the skeleton. In front and at the sides this outline is filled up with the abdominal muscles and viscera. The bones throughout this region that chiefly deserve the artist's attention are, 1. The bones of the spinal column just alluded to. Like the vertebræ of the neck this bony chain of the loins is formed for gradually bending itself into a great variety of curves.‡ 2. The pelvis, so called from some resemblance to a basin.* It comprises the several bones already named which are partly cemented into one,† *viz.* the os sacrum,‡ the ossa ilium, the ossa pubis, and the ossa ischii.§ 3.

Region of the abdomen. Its bones.

will find, indeed, respecting most forms, functions, and relative positions throughout the muscular economy, that one hour in the dissecting room will sometimes explain more than he could learn from a year of study among folios of careful description and most elaborate comment. Respecting the muscles of the human forearm, we only observe, in conclusion, that they are never strongly marked, unless the hand is engaged in grasping with force any object.

* The lumbar vertebræ vary considerably in number. The elephant has only three; the camel seven; the horse has six, the ass five; mules have generally six, but sometimes only five. Most quadrupeds have the processes of these vertebræ turned forwards; in the ape they are in their ordinary position turned upwards. The transverse processes are remarkably large in many *ruminantia*, as also in the bare. Blumenbach's *Manual* by Lawrence, p. 43. In birds, that part of the spine which belongs to the trunk is short and rigid, and has no true lumbar vertebræ. *Ibid.* p. 61.

† The parts of the body which contain the principal organs for respiration and circulation are placed in the chest, strongly guarded by the upper ribs, by the sternum, and upper dorsal vertebræ. But the parts placed below (or in quadrupeds *behind*) these, and composed of the abdomen, the viscera, and loins, have no bony enclosure; and are undefended, except on one side towards the backbone, by other ribs, termed false ribs, (of these the horse has ten,) which take the same direction as the true, but become shorter as they approach the loins. A reason for this arrangement appears to be, that the functions of the bowels and abdominal parts will be performed more freely without this external guard; but chiefly, that greater room and play may be allowed for motion throughout the various turnings and bendings necessary to balance the rest of the body, or sustain it in the easiest and most convenient position. The want of motion in the back of birds (their dorsal vertebræ have the spinous and even the transverse processes often anchylosed) is compensated by a larger number, and by greater mobility of vertebræ in the neck. Of these latter, to quote a few instances, the raven has twelve, the cock thirteen, the ostrich eighteen, the stork nineteen, and the swan twenty-three. Four or five of the upper cervical vertebræ only have power to bend forwards, while the lower ones are confined to flexion backwards. This causes the double curvature resembling the letter S in the neck of a bird. The great mobility of the neck enables birds to touch every point of their own body with the bill, and thus supply the want of a prehensile faculty in their upper limbs. In proportion as their neck is movable their spine or backbone will be found consolidated. Steadiness is thus given to the trunk in the violent exertion required for flying. Birds which do not fly, as the ostrich and the cassowary, have a movable spinal column.

‡ Each of the twenty-four bones of the spine from the human coccyx upwards to the occiput is attached to its neighbour by means of four projecting parts; two at its upper, and two at its lower side, called the superior and inferior oblique processes. The former two act as supports for the two similar projections in the next vertebra above. The two latter rest upon or overlap the two adjacent projections in the next vertebra beneath them. Besides this mode of union these vertebræ are held together by strong ligaments extending in great variety over the parts where the vertebræ are contiguous; not binding them so tightly as to prevent easy motion, but preserving them from separation, except by such force as would break the bone itself. The rounded part of the column, which lies next the interior of the thorax and abdomen is called the body of the vertebra. Each vertebra, besides its body or ring of bone and the projecting parts already mentioned, which unite it with its neighbours, has other projections also to which muscles are attached turning the vertebræ to the right or left, backwards, forwards, or laterally. These have the name of processes. Those behind down the middle of the spine are called spinous processes. Those on each side are called the transverse processes. The course of the spinous processes is more or less distinctly visible in the living subject according to the bendings of the back. To steady the back in bending is the use of the ligaments that were mentioned. "The vertebræ," says Paley, "by means of their processes and projections, and of the articulations which some of these form with one another at their extremities, are so locked in and confined, as to maintain, in what are called the bodies, or broad surfaces of the bones, the relative position nearly unaltered, and to throw the change and the pressure produced by flexion, almost entirely upon the intervening cartilages, the springiness and yielding nature of whose substance admits of all the motion which is necessary to be performed upon them without any chasm being produced by a separation of the parts. I say, of all the motion which is necessary; for although we bend our backs to every degree almost of inclination, the motion of each vertebra is very small; such is the advantage which we receive from the chain being composed of so many links; the spine of so many bones. Had it consisted of three or four bones only, in bending the body the spinal marrow must have been bruised at every angle. The reader need not be told that these intervening cartilages are gristles; and he may see them in perfection in a loin of veal. Their form also favours the same intention. They are thicker before than behind; so that when we stoop forward, the compressible substance of the cartilage yielding in its thicker and anterior part to the force which squeezes it, brings the surfaces of the adjoining vertebræ nearer to the being parallel with one another than they were before, instead of increasing the inclination of their planes, which must have occasioned a fissure or opening between them." Paley, *Natural Theology*, 8vo. 1807, p. 110. A new edition of this Work is promised under the scientific and indefatigable auspices of Lord Brougham.

* Blumenbach observes that "no animal but Man has properly a pelvis, because in no instance have the bones of this part that basin-like appearance when united, which belongs to the human subject. In the elephant, horse, &c. the length of the symphysis pubis detracts from the resemblance to a basin." Perhaps the most generally applicable illustration for this part of the animal structure may be made by regarding it as the lower or hinder portion of a two-wheeled or four-wheeled carriage. And in this vehicle the weight to be sustained is either placed upon and within it as in the case of Man; or is suspended from it as in the case of birds and quadrupeds. The pelvic esseda, or currus on which the human trunk is poised and in which it is carried, may be said to move upon two wheels the spokes of which answer to the peculiar position and rotatory movements of the femora. The quadruped, on the other hand, may be said to form a plaustrum, having four wheels. But then this waggon (to make the comparison a proper one) must not have the load placed within it or upon it, but must be that kind of machine used very commonly for moving heavy beams or logs of timber which are suspended from a horizontal pole as from a spine. This suspension occurs also among birds when they stand or walk, except that their bodies may be said to hang from a pole or spine which rests upon two wheels only. See last note to Art. 243.

† The os sacrum and ossa ilium are not altogether anchylosed, except in very old subjects; generally, they are united by articulations and cartilages. In birds the ossa ilium extend upwards to the region of the thorax.

‡ The os coccygis is prolonged so as to form the tail of quadrupeds: and consists therefore, in many cases, of a great number of vertebræ. Blumenbach, p. 44.

§ The two last-named pairs do not show themselves prominently from under their muscles so as to be remarkable in the life. But the os sacrum is important as containing and marking in most animals the extreme intersection of the mesial plane, (Art. 231,) and also the extreme point at the bottom of the back. The markings, too, of the upper parts in the arches of the ossa illi, showing the course of what is called Poupart's or Fallopius's ligament, are distinctly visible in the human subject, as also in quadrupeds; near

Painting.

The os coccygis, which though of small importance to the artist in the human subject, is in lower animals and in quadrupeds actively conspicuous. It contains the tail, one of the most characteristic features for animal expression, consisting of more or less vertebræ, with various degrees of strength and mobility, according to the wants and habits of the animal.* 4. The supporting limbs in the abdominal region comprise the hinder legs of quadrupeds: and in Man the *inferior extremities*, so called to distinguish them from the two other limbs appended to the thorax, and called the *superior extremities*. Between these two thoracic limbs and those two supporters of the abdomen there are several points of analogy. Each superior extremity consists of four parts; each inferior also of four that correspond to them. First the ball and socket joint of the shoulder (at the union of the clavicle and scapula) answers to the ball and socket joint of the round head of the femur, (at the junction of the os pubis with the os ilium,) only that the latter socket, called the acetabulum,† is deeper and larger than the glenoid socket or cavity. Again, the humerus with its hinge-joint at the elbow, answers to the femur‡ with its hinge-joint at the knee. Thirdly, the part composed of the radius and ulna of the fore-arm answers to the tibia and fibula of the leg;* and fourthly, the carpus, metacarpus, and phalanges of the fingers answer to the tarsus, metatarsus,† and phalanges of the toes.‡

Of Outline.

(247.) We now proceed as before, according to what was suggested in Art. 220, to devise for the region of the abdomen certain *imaginary points, lines, or planes* for determining the relative position of the bones, as seen from any point of view. There are, in the human pelvis, three fixed points, which being joined by three straight lines will always form a triangle, the plane of which having a known or determinate inclination either to the horizontal or any other plane is easily found.

Points, lines, and planes, for determining their position.

the croup, for example, of a horse, or ox, the spines of the ossa ilii stand up on each side of the hinder extremity of the backbone.

* The tail in mammalia consists of a series of vertebræ, being a prolongation of the os coccygis successively decreasing and moved by no less than eight pairs of muscles, of which the action is threefold; one for extending and elevating the tail; a second for inflecting or depressing it; and a third by which it beats or lashes the sides of the animal. These motions in succession or combination form others more complex; so that the tail may be twisted on its axis, or turned in a spiral direction.

† "The joint at the shoulder compared with the joint at the hip, though both are ball and socket joints, discovers a difference in their form and proportions well suited to the different offices which the limbs have to execute. The cup or socket at the shoulder is much shallower and flatter than it is at the hip, and is also in part formed of cartilage set round the top of the cup. The socket into which the head of the thigh-bone is inserted, is deeper and made of more solid materials. This agrees with the duties assigned to each part. The arm is an instrument of motion principally, if not solely. Accordingly, the shallowness of the socket at the shoulder, and the yieldingness of the cartilaginous substance with which its edge is set round, and which, in fact, composes a considerable part of its concavity, are excellently adapted for the allowance of a free motion and a wide range, both which the arm requires. Whereas, the lower limb forming a part of the column of the body, as well as to be the means of its locomotion, firmness was to be consulted as well as action. With a capacity for motion in all directions, indeed, as at the shoulder, but not to any direction to the same extent as in the arm, was to be united stability or resistance to dislocation. Hence the deeper excavation of the socket, and the presence of a less proportion of cartilage upon the edge."—Paley, *Natural Theology*, p. 126.

The length of the neck in birds increases generally in proportion to that of the legs, but in a much greater proportion among aquatic birds, since they have to seek their food below the surface of the water in which they swim. The number of cervical links or vertebræ of the neck varies from ten to twenty-three. That of the dorsal from seven to eleven. From hence they are consolidated into one piece with the os innominatum. The tail has from seven to nine pieces.

‡ The femur of the other mammalia follows, in its general figure and parts, the type of that of the human frame. But it is not arched as in the human subject: it possesses scarcely any neck, and the great trochanter ascends beyond the head of the bone. The femur of most quadrupeds is much shorter than the tibia, and hence it hardly projects from the abdomen. In some few, as the bear, the femur is longer; also in some apes, *viz.* the ourang-outang, in which, as in several other apes and baboons, the bones of the arm and forearm are surprisingly longer than those of the thigh and leg. Some, as the elephant, have no ligamentum teres, consequently there is no impression made on the head of the thigh bone. The length of the femur depends on that of the metatarsus, and bears an inverse ratio to the length of that part. Blumenbach, *Manual*, p. 53. The femur of birds is provided with one trochanter only.

* The pecora want the fibula universally. In some simiæ the leg and forearm exceed the thigh and arm. In other animals, although there are some varieties, the leg is generally longer than the thigh. The fibula is behind the tibia in many animals, as the dog and the rodentia. It is consolidated to that bone at its lower end, in the mole and in the rat. It exists only as a small styloid bone in the horse, and becomes in an old animal anchylosed to the tibia. *Ibid.*

In the rhinoceros, elephant, and hog, the fibula is flattened and united to the whole length of the tibia. In ruminant animals, its place is supplied by a small excrescence of bone on the outer margin of the astragulus below the tibia, and forming the external or fibular ankle.

† The os calcis in the *rodentia*, stands out considerably backwards. The os scaphoides, consisting of two parts, forms a tubercle on the sole. The scaphoid of the hog is assisted by three cuneiform bones, and beneath the first the rudiment of a great toe. These animals have all the same number of toes as of metatarsal bones. In the *ruminantia* the os cuboides and os schaphoides are distinct bones only in the camel; in all other ruminants they are united in one. In the *solidungula*, the scaphoid and cuboid are separate. The tarsus of the horse is composed of six bones, in common language called the *hock*.

The fibula, in birds, forms a thin slip adhering to the tibia as far down as the middle of the latter. The latter, at its tarsal extremity, terminates in two condyles with a pulley-shaped groove between them. Attached to it, in place of the tarsus and metatarsus, stands a single bone of considerable length, and having three processes, to which are attached the bones of the three anterior toes, with a marginal attachment for the bone of the great toe. The metatarsal of the ostrich is confined to only two processes, that being the number of toes in that bird. An excrescence of horny matter, commonly called the spur, is attached above the great toe to the metatarsal of several gallinaceous birds.

In the ruminantia and solidungula three metatarsal bones are united into a single one, called the cannon bone. The structure of the metatarsus, as that of the horse, is the same with the structure of the metacarpus. In the pachydermata, as the pig and elephant, the metatarsal bones, where they join the tarsus, have a flat surface, and at their other extremity a round tubercle with a prominent line below in the middle of the bone. The elephant has five perfect toes; the hog four. Ruminantia have two perfect toes upon one metatarsal bone; and two small toes attached behind its base. The solidungula have one perfect toe and two imperfect, which are reduced to a single styloid bone; they are distinguished by supporting themselves in walking only upon the last phalanx to which the hoof, analogous to the human nail, is affixed. The only part of the foot in the ruminantia and soliduogula which is applied to the ground, is that unguinal phalanx. In other animals, as the dog and the cat, the body is supported upon all the phalanges of the toes. The elongation of the metatarsus removes the os calcis of the horse and ruminantia at such a distance from the toe that it is placed midway between the trunk and hoof.

‡ Three positions at the upper part of the femur require careful attention; that of its round head already mentioned on which it turns; and that of two prominences for the attachment of important muscles, *viz.* the greater and the less trochanter, with a foss or groove situated posteriorly between them. The marking of the patella at the knee and of the crural extremities at the ankles are conspicuous; also the os calcis and astragalus together with the arches of the foot.

Painting.

(Art. 208.) By the term fixed is meant that notwithstanding any change in the position of the body, they never in one and the same subject change their distance from each other. The three fixed points of the pelvis which we conceive most generally available to the draughtsman are what we will term the *sacral* point and the two *acetabular* points. The sacral is a point in the sacrum under the centre of the lowest vertebra of the back. The right and left acetabular points are close to the centres of motion within the right and left acetabula. The sides of this triangle may be further considered as containing or measuring the spans of the three arches into which we divided the pelvis. (Art. 246.) We will denominate therefore the three lines that make the triangle—the line of the right iliac arch; the line of the left iliac arch; and the acetabular line,* or line of the pubic arch. For example, in the triangle A B C, (plate iii. fig. 16,) the point B is the sacral point; A the right acetabular, C the left acetabular point; A C the acetabular line; B A the line of the right iliac arch; B C the line of the left iliac arch.

Sacral point.

Acetabular points.

Lines of the pelvic triangle.

(248.) A straight line B D from the sacral point B to the centre D of the acetabular line is the sacro-pubic line. When the figure is erect, balanced equally on both legs, this line is nearly perpendicular to the horizon. It is the line of intersection of the mesial plane of the pelvis with the plane of the pelvic triangle A B C; in the same manner as the sterno-dorsal line (Art. 224) is the line of intersection for the mesial plane of the thorax with the supercostal plane; or, as in the region of the head, (Art. 226,) the head's axis is the intersection of the mesial and coronal planes, and the occipital line the intersection of the mesial plane with the maxillary plane.†

Sacro-pubic line, viz. the intersection of the plane of the pelvic triangle with the mesial plane.

(249.) The position of the limbs in the abdominal region may be ascertained in the same manner as that of the humerus and forearm, (Art. 238,) and with less difficulty, because the points A and C (plate iii. fig. 17,) are fixed; (Art. 247;) whereas the points of the shoulders must continually change their relative position according to the motions of each clavicle. A line from either of the acetabular points A or C to a point between the condyles of the femur, may be called the line of the femur, or the *femoral* line. Again, from between the condyles of the femur a line to the top of the astragalus, where the latter affords a pedestal to the column of the tibia, may be called the line of the leg, or *crural* line.‡

Femoral line.

Crural line.

From the supporting point at the lower extremity of the crural line, another line (in the human foot) may be drawn to what, in common speech, is called the ball of the great toe; but is, in fact, the junction of the metacarpal of that toe with its first phalanx. This line will be in the direction of one of the arches formed by the bones of the tarsus for supporting the human body: this line therefore may be termed the line of the inner arch of the foot. Another arch extends also from the heel to where the metatarsal of the little toe joins the tarsus.*

Of Outline.

Line of the inner and outer arch of the foot.

(250.) *The motions of which the bones* in the region of the abdomen *are capable* come next under consideration. The motions of the bottom of the back, or lumbar vertebræ, are various; and its curves, like those of the neck, are by no means easily ascertainable for the pencil. The position of the pelvis relatively to the rest of the animal frame is the more difficult to determine in proportion to the mobility of the lumbar vertebræ.†

Motions of bones in the region of the abdomen.

(251.) The motion of the femur‡ resembles that of

* The length of the acetabular line, or distance between the acetabular points, is greater in the female.

† These lines, the axis of the head, the occipital line, the sterno-dorsal, and the sacro-pubic come under the general terms of *mesial lines of intersection*. They are in every case the intersection of two planes at right angles with each other. The mesial plane, therefore, and the plane of the pelvic triangle will always intersect each other at right angles, just as the coronal and maxillary (Art. 226) and supercostal planes are always at right angles with the respective mesial planes of the head and thorax.

‡ Allowance, in all cases, must be made for the different degrees of compression in the cartilages at the joints of any limb, or at the articulations of the several bones. In proportion as the cartilaginous spring which divides any two bones is compressed, their length will be diminished. This compressibility is greater after fatigue, or in sickness, than when the powers of animal life are vigorous and fresh. Thus men are taller when they rise after sleep than if measured after a day's labour, when the elasticity of the cartilages has been reduced. Another yet more remarkable variation in the length of the limbs, and consequently in the lines of the humerus, forearm, and hand, as well as in the femoral, crural, and metatarsal intervals, arises from the nature and form of the joints themselves. A hinge-joint, when it bends, must leave, on the side opposite that towards which it bends, a greater or less space; greater as the angle becomes more acute, and less as the angle enlarges. Of this any person may be made sensible who can open or shut a door, or swing a gate. Hence it happens that the length of such limbs as have hinge-joints is shorter when they are extended than when they are bent. Of the human arm Da Vinci reckons that it loses or gains one-eighth in its length according as it is stretched out or drawn in by inflection. Also in the foot, that part called the instep, or the interval between the great toe and the tibia, lessens as the tibia rolls forward on the astragalus by the action of the tibialis anticus muscle; on the other hand, the interval increases when the heel is raised, and the os calcis makes with the tibia an acuter angle. Da Vinci, *Trattato della Pittura*, c. 174, and c. 177.

* Suppose the sole of the foot planted firmly on the ground; I K (plate iii. fig. 17.) will be the place of the os calcis, K H will be the line of the inside arch of the foot, and the line I G will show the direction of the supporting arch under the malleolus externus, or outer ankle, extending from I, under the os calcis, to G (the junction of G L, the metatarsal of the little toe with the tarsus;) I G, therefore, may be termed the line of the outer arch of the foot: under G H is a third arch supported on the side of L H by all the toes. When the figure stands on tiptoe, the metatarsals along the line L H form five hinges, on which to turn the whole superincumbent frame of the body. The observant reader will not need to be informed, that this occasional position of the human foot supporting the body on its toes, is analogous to the usual position of the hinder legs and feet of quadrupeds. (Notes to Art. 246.) The outer ankle is lower than the inner one: upon the accurate outline of these malleoli, as well as upon the right position of the carpal extremities of the radius and ulna, must depend much of the expression of which the hands and feet are so beautifully capable.

From the nature of the hinge-joint at the knee, and at the lower extremity of the tibia, it follows, that the femoral and crural lines, together with a line through the foot parallel to the line of its inner arch, will be always in the same plane. Consequently, if the acetabular point be given, as well as the length of the femoral and crural lines, and also the vanishing line of the plane that contains them, they may be represented making, under any aspect, any required angle with each other. So also the line of the outer arch of the foot may be represented making any required angle with the crural line.

† The method which was suggested (Art. 231) for measuring the extent of the conical motion of the neck may here be again serviceable towards outline of the human subject. Let the two points at the two extremities of the curve be regarded as alternately the apices of various cones. In the present case let those two points be the centre of the seventh dorsal vertebra (Art. 235) and the sacral point. (Art. 247.) If the sacral point be stationary, then the seventh vertebra of the back may be considered as describing the base of a cone, of which the sacral point is the apex: and of which the altitude will be inversely as that base. The upper part of the body will, in this instance, be entirely supported upon the lower extremities. But suppose this instance reversed. Suppose the thorax fixed as that of a sailor descending by a rope, the weight of whose abdomen and body are suspended from his upper extremities: the sacral point, in this latter instance, may describe in its turn the base of a cone on similar conditions with that described before by the seventh vertebra which now takes the part of apex.

‡ In Man the femur is placed on the same line with the trunk of

the humerus, but is less varied; the arms and hands have motions fitting them more particularly for action; their business is chiefly *manual*; whereas the legs and feet, being chiefly intended for supports of the body, have not the facilities of changing their position so quickly, or in so many ways, as the arms and hands. The tibia therefore and fibula have no pronation nor supination. (Art. 240. 244.) The leg, indeed, may be rolled, and the foot turned inwards or outwards till the heel appears in front, but this is done through the rotatory motion of the round head of the femur *

Action of muscles in the region of the abdomen.

(252.) The *muscles* and their attachments in the region of the abdomen which require the artist's careful examination, are, (in the human subject,) 1. The *obliqui externi*.† 2. The *obliqui interni*.‡ 3. The *transversales abdominis*, although covered by both the former, and therefore less apparent, are yet necessary to be here remarked upon, since their junction (at the edge of the rectus) with the tendons of the obliqui abdominis, forms what is called the *linea semilunaris*. The transversalis supports and compresses the viscera. 4. The *rectus abdominis*.§ 5. The student will remark several *tendinous ligaments*.‖ 6. The *pyramidalis*.¶ All the above

Muscles for moving the trunk.

muscles have a share together with the *pectorales* (see region of the thorax) and *psoæ magni* (see Art. 254) in bending the trunk *forwards*.

Of Outline.

(253.) For the backward inflection of the trunk, we reckon. 1. The *trapezii*.* 2. The *latissimi dorsi*.† 3. The *sacro lumbales*.‡ 4. The *longissimi dorsi*.§ 5. The *serrati postici*. One pair called superiores, employed for elevating; another, the inferiores, for depressing the ribs. These two pair of muscles assist the backward inflection of the trunk. The former pair arises from the three lower vertebræ of the neck to be inserted by distinct fleshy slips into each of the five upper ribs. The latter pair arises from the spinous processes of the two latter vertebræ of the back, and from the same parts of the three upper vertebræ of the loins by means of a fascia called the fascia lumborum.‖ The serratus posticus inferior is inserted into the lower edge of the four lowest ribs.¶

Muscles for moving the femur.

(254.) The muscles for the five motions of the human femur.** 1. To extend or stretch it forwards; 2. to

the body; in other animals it always forms an angle, and sometimes a very acute angle with the spine.

* It is to multiply this variety of femoral motions that the head of the femur is provided with a neck extending nearly two inches from the acetabulum, and making an angle (downwards) of about 38 degrees with the remainder of the bone of the thigh. The advantages of this kind of projection we have already remarked upon in Art. 177, for supporting the weight of a carriage. We may conclude universally respecting the motion of the several bones in the limbs of the abdomen, that it includes flexion and extension; and that it superadds abduction and adduction, with a certain degree of rotation for turning the toes inwards or outwards; and we must observe, that from the great toe being destitute of an opponens muscle like that of the thumb, the foot has no prehensile powers at all to be compared with those of the hand.

† Called *descendentes*, from their spreading obliquely downwards out of their serrated origin in the eight inferior ribs between the digitations of the serratus magnus anticus, (referred to in the last note to Art. 242 as belonging to the thorax,) in order to insertion into the ensiform cartilage of the sternum, into the linea alba, along the whole of its length, and into the forepart of the spine of the ilium. The obliqui draw down the ribs in expiration, bend the trunk forwards when both muscles act, or bend it obliquely to one side when one acts; raise also the pelvis obliquely when the ribs are fixed, and compress the viscera.

‡ Called *interni* from lying under the former muscles, and called *ascendentes* from their *rising*, anteriorly as well as posteriorly, out of the whole length of the spine of the ilium, and out of the upper part of Poupart's ligament, and out of the fascia of the loins, to be *inserted upward* into the cartilages of the five inferior ribs, into the ensiform cartilage of the sternum, and into the linea alba: the obliqui interni assist the before-named muscle. Observe, however, that each internal oblique bends the body in the same direction as the external oblique of the opposite side.

§ Originating from the middle of the pubis, and extending directly upwards to its insertion into the ensiform cartilage, and into the fifth, sixth, and seventh ribs: it compresses the forepart of the abdomen, bends the trunk directly forwards, or raises the pelvis. Between the two recti abdominis is a central tendon, called the linea alba, conspicuous in the Mercury, and in antique figures generally.

E. gr. *Poupart's* ligament, attached at one end to the spine of the os pubis, and at the other to the anterior of the spine of the ilium; likewise the *linea alba*, which comes from the sternum towards the symphysis pubis, dividing, like the intersection of the mesial plane, the right side of the abdomen from the left, and composed of the united tendons of the obliqui and transversalis. Lastly, the *lineæ transversæ* must be noticed, being three tendinous intersections of the rectus shining through the strong sheath which encloses it, and extending transversely across the linea alba to the lineæ semilunares on each side; the middle linea transversa crosses the umbilicus, or navel. The liniæ transversæ are remarkable in the Hercules Farnese and the Torso.

¶ This muscle originates from the pelvis, and is inserted into the linea alba immediately below the lowest of the lineæ transversæ.

* Partly situated in the region of the head and thorax, they have origin from the occiput and five superior cervical vertebræ at the ligamentum nuchæ along the spinous processes, as well as from the two remaining vertebræ of the neck, and from the spinous processes of all the dorsal vertebræ, are inserted into the hinder part of the clavicle, and into the acromion, and into the spine of the scapula. The various origins of the trapezii along the line of the vertebral processes serve to explain the extraordinary variety of action upon the shoulder performed by the fibres of this muscle. The joint action of all draws the upper part of the body backwards.

† They have origin in four or five directions; one from the spinous processes of the sacrum; one from those of the lumbar vertebræ; one from those of the six or seven inferior dorsal vertebræ. The latissimus originates also from the back part of the spine of the ilium, and from the extremities of the three inferior false ribs, by distinct fleshy digitations intermixing with the digitations of the obliquus externus. (Art. 252.) The latissimus, passing over the inferior angle of the scapula, receives often from thence some attaching fibres, and passes to be inserted into the humerus at the inner part of the bicipital groove (Art. 233) before the insertion of the teres major. This muscle is very forcibly given in the Gladiator, and the Hercules Farnese.

‡ They arise out of the back part of the sacrum and its spinous processes; also out of the back of the spine of the ilium; also out of the lumbar vertebræ, *viz.* from the roots of their transverse processes, and from their spinous processes. The sacro lumbalis is inserted into all the ribs near their angles by long and thin tendons.

§ They arise in common with the last pair of muscles from the same parts of the sacrum and lumbar vertebræ. The longissimus is inserted into all the ribs except the two last, and sends tendinous slips into the transverse processes of the fourth, fifth, and sixth cervical vertebræ. In ascending, it adheres to the transverse processes of all the dorsal vertebræ. Its office singly, is to bend the body sideways, but in conjunction with its fellow, its office is to extend the vertebræ, and thus erect the body. Although the two last-mentioned pairs of muscles, together with the splenius colli, (see region of the neck,) are entirely covered by the trapezii and latissimi dorsi, yet their shape and action will be often found sufficiently marked and visible in the living subject.

‖ The fascia lumborum is formed by the latissimus dorsi and the obliquus internus abdominis uniting with the tendon of the serratus posticus inferior.

¶ To these muscles for backward inflection Barclay adds the rhomboidei majores, the spinales and semispinales dorsi, the multifidi spinæ, intertransversarii dorsi et lumborum, and the quadrati lumborum. Of the two last, he says, that he has enumerated them because they are "dorsad (behind) the centre of motion, and, accordingly, relaxed in the dead body when the trunk is inflected in the dorsal (backward) direction."

** The situation, generally, of the femoral muscles is thus described. The tensor vaginæ femoris and sartorius will be seen attached above to the anterior spine of the ilium; along the front of the femur may also be observed the rectus femoris. On the outer side is the vastus externus, and on the inner side, along the edge of the rectus, is the vastus internus. Immediately on the inner side of the sartorius

bend it backwards; 3. to draw it outwards from the side by *ab*duction; 4. to draw it inwards towards the opposite femur by *ad*duction; 5. to turn the toes by rotation* are employed as follows:

1. *Extension* is the duty of the *gluteus magnus*,† which originating from the back of the spine of the ilium, from inside of the sacrum, and from the coccyx, and taking hold of the ligaments between the sacrum and ischium, is inserted into the upper and outer part of the linea aspera. For the same office, the *gluteus medius*‡ arises from the spine of the ilium and from the external surface of that bone to be inserted into the upper and outer part of the trochanter major. Another extensor is the long head of the *biceps cruris*§ arising in common with a muscle called the semitendinosus from the upper and back part of the tuberosity of the ischium. Its short head arises from near the middle of the linea aspera. The two heads are continued separately downwards till they unite a little above the knee-joint and terminate in a strong tendon passing at the outside of the knee to be inserted into the head of the fibula. The remaining muscles to be mentioned for extension of the femur are, the *semitendinosus*, the *semimembranosus*, and the *adductor magnus*.‖

2. For *flexion*, or bending the femur *backwards*, the muscles to be noticed in Painting are next to be enumerated. The *sartorius** arises by short tendinous fibres anteriorly from the top of the spine of the ilium, and descending thence obliquely (about two inches in breadth) across the femur to the knee behind the inner condyle, terminates in a flat tendon which is inserted into the inner side of the tibia, four or five fingers breadth below the knee-joint. The *gracilis* arises in a thin tendon near the symphysis pubis, and forms, as its name implies, a slender muscle. It passes down the inside of the femur to the knee, and is inserted by a tendon into the inner side of the tibia between the insertion of the sartorius and of the semitendinosus. The *tensor vaginæ femoris* arises by a short tendon from the outer part of the spine of the ilium near the origin of the sartorius and between that and the anterior fibres of the gluteus medius. It descends a little way along the inside of the thigh to a short distance below the trochanter major, and is inserted into a folding of the aponeurosis or fascia lata of the thigh. (Art. 259.) The *pectineus*, or *pectinalis*,† arises fleshy from the upper and forepart of the os pubis, and descending (a broad flat muscle) behind the femur is inserted by a short flat tendon into the upper part of the linea aspera a little below the trochanter minor. The *triceps femoris*‡ comprises three distinct muscles called *adductores*, one of which, the adductor magnus, is only partly concerned in flexion of the femur, being sometimes partly employed, as was seen above, in extension. Its origin and insertion have been stated. (See note at the bottom of the last column.) The *flexor* portion of the adductor *magnus* is that which arises from the crus or ramus of the ischium. The adductor *longus* originates from the upper and forepart of the os pubis, and from the neighbouring cartilaginous ligament; the adductor *brevis* from the os pubis near the symphysis. The former is inserted into the middle of the linea aspera; the latter into the upper part of the linea aspera. The *psoas magnus* arises laterally from the bodies of the four upper vertebræ of the loins, and from their transverse processes, and also from the lowest vertebra of the back. The *iliacus internus* arises from the concave surface within the ilium and from its outer edge, and passing over the ilium near the os pubis is inserted with the psoas magnus by a tendon into the trochanter minor. These two last named muscles form the thick fleshy mass which is seen

above is the psoas magnus and iliacus internus descending together in one mass beneath Poupart's ligament into the hollow of the thigh. Next to these is the pectinalis running obliquely downwards from the pubis to the upper part of the femur. The inside is occupied by a large mass of muscle, consisting of the triceps adductor femoris, and a long slender muscle, the gracilis. See Simpson, *Anatomy of the Bones and Muscles designed for the Use of Artists*, part ii. p. 114. For a popular description of these muscles in the Horse, see *Library of Useful Knowledge*, Farmers' Series, part ix. p. 259, 260. describing those of the femoral or hinder extremities. Those of the fore-quarters will be found in the same Treatise, p. 228.

* There is a rotatory movement of the femur similar to though not so exteosive as that of the humerus. (Art. 243.) This is performed by the combined or successive action of the muscles employed in the four other motions here stated.

† The gluteus maximus, (or magnus,) which is the largest muscle of the human body, is so small and insignificant in other animals that it may be said not to exist. It extends the pelvis on the femora of the human subject in standing, and assisted by the other two glutei maintains that part in a state of equilibrium on the lower extremity, which rests on the ground, while the other is carried forwards in progression. The true office, therefore, of these important muscles does not consist, as it is usually represented in the common anatomical works, in moving the femora on the pelvis, but in that of fixing the pelvis on the femora, and of maintaining it in an erect position. Blumenbach, *Manual*, p. 308.

‡ The buttock, in quadrupeds, is formed of the gluteus medius and minor. In the horse, for example, though the gluteus magnus has chiefly the character of a slight aponeurosis, the gluteus medius is distinguished by remarkable strength, which in connection with some other muscles, particularly the gemellus, enables the animal to extend the hind leg suddenly and with astonishing force in kicking. p. 311.

§ This muscle in all quadrupeds is not properly a biceps, but a triceps, namely, with a single head, having one origin only. It arises from the ischium. It is the *vastus longus* of the horse and dog.

‖ The first of these is for about two or three inches, connected, as above stated, with the biceps. It ascends on the inside of the femur to form a thick belly, from which a long, round tendon runs behind the inner condyle to be inserted immediately below the tuberosity of the superior end of the tibia. The next, the *semimembranosus*, arises near the muscle last named, only in front of it, from the upper part of the tuberosity of the ischium, and proceeds obliquely down the femur beneath the semitendinosus to be inserted into the upper and inner part of the head of the tibia. This muscle with the semitendinosus forms the inner hamstring. The last, the *adductor magnus*, is one of three distinct muscles sometimes included altogether under one term, *triceps* cruris, or triceps femoris. The adductor magnus originates from the edge of the os pubis near the symphysis, and thence continues to rise from the ascending ramus and tuberosity of the ischium. That part of it which arises out of the tuberosity of the ischium is the part here required for extending the femur. The whole passes behind the femur to be inserted into the entire length of the linea aspera and into the internal condyle.

Other muscles named by Barclay for extension of the femur are the pyriformis, the obturator internus, the gemini, and the quadratus femoris, all concealed under the gluteus magnus.

* The tailor's muscle, so called from the frequent use of it made by tailors in sitting à la Turque. The sartorius of the horse is denominated the adductor longus, in contradistinction to the adductor brevis answering to the gracilis.

† Birds instead of the pectineus have a thin muscle termed the accessory femoral flexor. It reaches to the knee and passes its tendon over the knee-joint, whence it retires to the back part of the leg, and runs, together with the flexor tendons of the toes, behind the heel. At the back of the leg its tendon divides; one slip or division goes to be inserted posteriorly into the metatarsus, the other slip joins the flexor perforatus of the first and last toe. Hence the flexion of the knee and heel produces mechanically a bent state of the toe, which may be seen in the dead bird; and it is by means of this structure that the bird is supported when roosting, without any muscular action. Blumenbach, *Manual*, p. 312.

‡ Beautifully marked in the Torso.

Painting. descending from beneath Poupart's ligament, by the side of the sartorius, into the hollow of the femur.*

3. *Abduction* is performed by the *tensor vaginæ* already described; also by the *gluteus magnus* or maximus, and by the gluteus *medius*.† The *sartorius*, already described as a flexor, is another muscle employed in abduction.‡

4. *Adduction* is effected by means of the three adductors, alias the *triceps femoris* above-mentioned; also by the *pectineus* and *gracilis*, by the *psoas magnus*, and *iliacus internus*, already described as flexors; and further, by the *semitendinosus*, by the *semimembranosus*, and by the *long head* of the *biceps cruris*§ already described as extensors.‖

5. *Rotation* is of two kinds; either for turning the toes *out*, which being in the direction of the fibula may be called fibular rotation; or for turning them *in*, which being in the direction of the tibia may be called tibial rotation. *Fibular rotation* is performed by the *gluteus magnus*,¶ and partly by the *gluteus medius*; also by the *iliacus*** *internus* and *psoas magnus*, by the *triceps* or adductores, and in some degree by the *biceps cruris*, if the leg be extended. All these muscles have been described above.†† *Tibial rotation* is made by the *tensor vaginæ* and by a portion of the *gluteus medius*; and if the leg be extended, these muscles are assisted by the *sartorius*, the *gracilis*, and the *semitendinosus*. Their description has been given in this article.* Of Outline.

(255.) The muscles to which belong the motions of the knee-joint in the human subject come now to be noticed. The movements of the tibia are limited to extension and flexion.† Muscles for moving the leg or tibia.

Its *extensors*‡ are, 1. The *rectus* cruris.§ 2. The *vasti*,‖ called internus and externus according to their situation on each side of the last muscle. 3. The *tensor vaginæ femoris*. (Art. 254.) 4. The *gluteus*¶ *magnus*. (*Ibid.*)

The *flexors* of tibia are** the *gracilis*, *sartorius*, *semitendinosus*, *semimembranosus*, *biceps cruris*, *tensor vaginæ*, and *gluteus magnus*, already described. (Art. 254.) It will be observed of the two muscles last named, that they are employed both as flexors and extensors. They are so employed at certain stages of flexion or extension. Both muscles are tensors of the fascia called vagina femoris, which, since it extends

* To these flexors Barclay adds the gluteus minor and obturator externus, both of which muscles have their movements effectually concealed; the former by the thick and fleshy fibres of the gluteus medius and gluteus magnus, the latter by various muscular strata in front, the uppermost of which are the psoas magnus, iliacus internus, and pectinalis.

† The gluteus *magnus* arises along the back part of the spine of the ilium; also from the outer part of the sacrum; also from the os coccygis; and lastly from the sacro-ischiatic ligaments. Its fibres are very large, and proceed obliquely downwards in a loose and folded mass to support with the greater ease the body when seated; and they terminate in a strong, flat tendon which passes over the trochanter major, and is inserted just below it into a rough surface at the upper and outer part of the linea aspera. The gluteus *medius* is in part covered by the magnus and arises from the remaining half, the anterior half, of the spine of the ilium; likewise from the dorsum, or outer surface of the ilium between the spine and the semicircular ridge. The fleshy fibres of this muscle contribute as they descend to mark the contour of the hip-joint. They converge into a broad tendon near the trochanter major, into the upper and outer part of which the muscle is inserted.

‡ These abductors are further assisted by the gluteus minor, covered, as already observed, with the other glutei; likewise by the pyriformis, obturator internus, and by the gemini. These three last mentioned come from the inside of the pubis through the sacro-iliac and sacro-ischiatic foramina to be inserted into the fossa below the trochanter major. All three are covered and have their movements concealed by the gluteus magnus.

§ The muscles situated on the back part of the thigh are three in number; the biceps flexor cruris, the semitendinosus, and the semimembranosus. The attention of the student must first be directed to the tendons of those muscles which form the hamstrings at the lower and back part of the femur, and at the back of the knee-joint. The outer hamstring is formed but of one muscle, the biceps flexor cruris; the inner hamstring is formed of two, the semitendinosus and the semimembranosus. Simpson, in *loc. cit.* p. 120.

‖ To these add the *quadratus femoris*, a muscle behind the femur, and concealed effectually by the gluteus magnus. Add also another adductor muscle in front, *viz.* the obturator externus concealed by the psoas magnus, the iliacus internus, and the pectinalis.

¶ The gluteus magnus or maximus in birds takes the form of a pyramid, whereas the pyriformis, properly so called, is absent.

** The iliacus in birds is represented by the gluteus minor, attached to the anterior edge of the ilium.

†† The gluteus minor, the pyriformis, gemini, obturator internus, obturator externus, and quadratus femoris, may be added. (See Barclay, *On Muscular Motion*, p. 429.) But as their action is concealed, they are of little interest to the artist.

* The rotatory muscles of the human femur, when the femur is fixed, observes Dr. Barclay, are calculated to produce similar motions in the trunk.

† Its companion, the fibula, has no connection with the knee-joint, and follows implicitly every movement of the tibia, to which it is attached securely both by ligaments from its capsules at each extremity, and by the interosseous ligament between the extremities; also by muscles attached to it and to the tibia, *e.g.* the soleus, tibialis posticus, extensor longus digitorum, and flexor longus digitorum; and, lastly, by muscles that cross the interosseous space longitudinally, *viz.* the tibialis anticus, extensor proprius pollicis, and flexor longus pollicis. Barclay, in *loc. cit.*

‡ The extensors, besides stretching out the leg, have the office, when the tibia is fixed, of bringing the pelvis and femur forwards over the leg. The *extensors* of the knee are much stronger in the human subject than in other mammalia, as their double effect of extending the leg on the femur, and of bringing the femur forwards on the leg, forms a very essential part in the human mode of progression. The *flexors* of the knee are, on the contrary, stronger in animals, and inserted so much lower down in the tibia (even in the simiæ) than in the human subject, that the support of the body in the hind legs must be very insecure; as the thigh and leg form an angle, instead of continuing in a straight line. *Ibid.*

§ Sometimes called rectus tibiæ, or rectus femoris, which arises by two strong tendons from two portions of the ilium: one tendon from an interior process at the lower part of the spine of the ilium, the other from its outer surface, or dorsum, just above the acetabulum. The tendons soon unite in a thin flat muscle, widening towards the middle of the femur, whence it passes directly downwards to the patella, into the upper and fore part of which it is inserted, to be again inserted into the tubercle in front of the tibia by the ligamentum patellæ.

‖ The *vastus internus* arises from a tendinous origin beneath the forepart of the trochanter minor, and from the *inner* and lower edge of the linea aspera. Its fleshy fibres proceed obliquely forwards down the femur, to be inserted partly into the tendon of the rectus, and partly into the *inner* edge of the patella. The *vastus externus* arises, broad, tendinous, and fleshy, from beneath the forepart of the trochanter major, and from the upper and outer side of the linea aspera. Its fibres proceed obliquely downwards and forwards, and compose the large fleshy mass on the outer side of the femur, but not continued so far down as those of the vastus internus. They are inserted partly into the tendon of the rectus, and partly into the *outer* edge of the patella.

¶ To these add the crureus, or *cruralis*, which has its rise between the vasti, and has a common insertion with them into the tendon of the rectus. Hence the two vasti, the cruralis, and the rectus cruris, have been sometimes described under the term quadriceps. The cruralis is quite concealed under the other three. These muscles are well shown in the Hercules Farnese, Gladiator repugnans, and almost every antique statue. They are more prominent the more the leg is extended.

** To these add the *gemelli*, concealed by the gluteus magnus; and the *plantaris*, concealed by the external head of the gastrocnemius, and of which the only part discernible is the lower end of its inserting tendon united to the tendo Achillis. Also the *popliteus*, still more deeply seated than the last muscle.

over the knee, and on each side of the knee-joint to be attached to the heads of the tibia and fibula, will have those two parts, on each side of the centre of motion in the knee-joint, alternately stretched and relaxed during the process of bending or extending the leg. The fibres of the fascia that reach downward from these muscles outside the femur to the fibula, will help to bend the leg. The fibres, on the other hand, that extend obliquely across the femur to the tibia will (while they pass over the intervening inner condyle at the knee) extend the leg.

Muscles for moving the foot.

(256.) The human foot is moved on its axis *upwards*, which is called flexion; *downwards*, which is called pointing the toes or extension; *inwards*, which may be called adduction, or turning *in* the toes; and *outwards*, which may be called abduction, or turning the toes *out*. The muscles, therefore, of the tarsus may, like those of the carpus, (Art. 245,) be divided into flexors, extensors, abductors, and adductors.

Its *flexors* are the *tibialis anticus*, the *extensor longus digitorum pedis*, and another muscle, sometimes wanting, which is properly a part of the extensor longus, called the *peroneus tertius*. Also the *extensor proprius pollicis pedis*, which, though the belly of the muscle is concealed between the tibialis and extensor longus, sends out its inserting tendon between theirs. The *extensors* of the tarsus are the *gemellus*,* alias gastrocnemius externus: the *soleus*, or gastrocnemius internus; both which blending inseparably their tendons, to be inserted together into the os calcis and to form the tendo Achillis, are sometimes called a *musculus triceps* (the gemellus has two origins) of the calf of the leg: the *plantaris*, sometimes wanting, of which the only part seen is the lower part of its tendon, near its insertion with the two preceding muscles posteriorly into the os calcis:† the *flexor longus pollicis;* and under it (concealed, but assisting to swell its dimension) the *flexor longus*‡ *digitorum perforans*. To these add the *tibialis posticus*, of which the tendon only is visible, passing with that of the flexor digitorum behind the inner ankle through a groove in the tibia: lastly, the *peroneus longus*, and the *peroneus brevis*, whose tendons descend behind the outer ankle to the sole of the foot for insertion, the former into the metatarsal of the great toe, the latter into the metatarsal of the smallest toe.

The *ab*ductors of the tarsus are the *peroneus longus*, *peroneus brevis*, and *extensor longus digitorum*, together with its offspring already described, the *peroneus tertius*.* The *ad*ductors are the *tibialis posticus*, the *flexor longus digitorum*, and the *flexor longus pollicis*, already enumerated as extensors of the tarsus.† With respect to muscular action upon the remaining portions of the foot, *viz.* upon the metatarsus and the phalanges thereto appending, we despair of making ourselves intelligible by any outline in words; and we close this description with recommending, as we did for an acquaintance with the hand, (Art. 245,) a complete dissection of the tarsal as well as carpal extremities.

Outline of the *whole* figure to be studied, as well as outline of parts.

(257.) The chances, however, of drawing with incorrect outline a hand or foot, or any separate limb and feature, may be far less than the likelihood of failure in putting all the parts of a figure well together. Many can draw a single part with precision and with grace, who yet fail lamentably in arrangement of the whole. Perhaps this is easy of explanation. Such objects as in the life are oftenest presented to the artist's eye, he will be likely to paint best. We have, for this reason, been the more diffuse upon the relative position, origin, and insertion of such muscles as were familiar daily to a Grecian student among the Gymnasia of old in the Age of Pericles or Alexander; but which other times, and other customs, and, we may add, an unfriendly climate, must always render less accessible to the ablest modern Phidias or the most accomplished modern Apelles of the North.‡ To sculptors the importance of having the whole figure well arranged is so apparent, that even in cases where folds of drapery cover almost

* The extensors of the ancle-joint, and chiefly those which form the calf of the leg, are very small in mammalia, even in the genus simia. The peculiar mode of progression in the human subject accounts for their superior magnitude in Man. By elevating the os calcis, they raise the whole body in the act of progression; and by extending the leg on the foot, they counteract that tendency which the weight of the body has to bend the leg in standing. Lawrence's Blumenbach, in *loc cit.*

† The *plantaris* muscle, instead of terminating in the os calcis, expands into the plantar fasciæ in the simiæ; and in other quadrupeds it holds the place of the flexor brevis or perforatus digitorum pedis, passing over the os calcis in such a direction that its tendon would be compressed, and its action impeded, if the heel rested on the ground. Lawrence's Blumenbach, in *loc. cit.*

‡ In birds the flexors of the leg and toes are remarkable. They answer to the flexores longi, and form three divisions, the first of which, again portioned into three, is a flexor communis perforatus. This muscle has two origins; one from the outer condyle of the femur continued into a perforated tendon to receive a tendon from the muscle that answers to our peroneus. The other origin which from the hinder surface of the femur gives out tendons for the index and digitus minimus pedis. Fibres from this flexor communis connect it with the accessory femoral flexor (see in Art. 254 note on the pectineus) already mentioned. By reason of this connection, and the insertion of each flexor tendon into its appropriate unguinal phalanx, the inflection of the femur causes an inflection also of the toes enabling birds to clasp their perch during sleep. See Borelli, *de Motu Animalium*, pars 1ma. prop. 149 and prop. 150.

* The peroneus in the female foot does not appear. It is strongly marked in the Laocoon and Hercules Farnese. On the instep, between the extensor longus and the outer ankle is seen the extensor brevis, very prominent in the Laocoon and in the left foot of the Gladiator. The feet of the Hercules Farnese may here, as they may in every case, be consulted as perfect models.

† Observe that the flexors of one bone are often the extensors of the next adjoining boue. Thus the flexors of the femur have been numbered amongst the extensors of the tibia. (Art. 254.) So in the present instance, the flexors of the tarsus are found among the extensors of the toes, and *vice versâ*.

‡ In the notes to a Poem entitled *Elements of Art*, published in 1809, from the pen of the present President of the Royal Academy, the reader will find, amidst much valuable information conveyed in a very lively manner, an observation, p. 142, that a modern Sculptor would not consider the practice of frequenting our pugilistic academies as "a very important accessory to his ordinary means of improvement; that to examine, to any purpose, the muscular forms seen there, he must take them to his study: and that the Romans, possessing similar opportunities with the Greeks for studying the human form at games and public exercises, never approached the excellence of Grecian art." We are of opinion that the Gymnasia of the Greeks probably contained figures that showed intellectual as well as animal power, models of nobler expression, and personages more graceful, as well as loftier and more dignified in character and deportment, than our "pugilistic academies" can often boast: but we think that with such living Grecian forms before him an able artist would prefer catching the expression of unconscious and unrestrained subjects to confining them in his *studio:* and we agree with the author that the superior taste and civilization of the Greeks brought them to admire and imitate, what less-gifted Roman artists would overlook. The remark in an Essay of Hume, that "*nothing is more favourable to the rise of politeness and learning than a number of neighbouring and independent States, cemented together by commerce and policy*," may account for the non-advancement of the Arts in ancient Rome. The mistress of the world had no rivals. Her slaves were her teachers. She condescended to be taught. How could she be eminent in what she half despised? *Excudent alii*, &c.

Painting. the entire body, their practice is to complete a perfect model of the form beneath, before draping is attempted. It is upon the same principle that we would urge the pictorial student to consider muscles as a clothing of the bones; and so thoroughly, in the first place, to acquaint himself with the skeleton of any animal, as afterwards to clothe it with facility in all its appropriate integuments, and thus to show the whole figure well sustained throughout.*

Of superficial ligaments and fasciæ.

(258.) But this acquaintance, generally, with muscular configuration will be incomplete if it lead to forced and exaggerated outline. The muscles in the living figure, besides their covering of the skin, are so sheathed and rounded, and kept down by various fasciæ and ligaments, annular, capsular, and inter muscular, that even in the most muscular living model they blend by degrees their boundaries, gliding softly and insensibly into each other, and have no markings that at any time, or under almost any circumstances, will be seen approaching to hardness. Of the superficial ligaments and fasciæ in the human subject it will therefore be necessary to make some mention. The *inguinal* ligament, called *Poupart's*, or the crural arch, along the spine of the ilium to the os pubis, has been noticed; (Art. 252;) it is a folding or doubling back of the tendon of the obliquus externus. The use of these ligaments generally is to bind down the tendons and prevent them from starting; and sometimes to give them, as by a pulley, a new direction. Each tendon for this purpose is enclosed in a smooth and well-lubricated tendinous channel, which is called a *capsular* ligament; also at the extreme joints of the limbs, both of the thorax and abdomen, are affixed tendinous bands, called *annular* ligaments, under which, through distinct rings or sheaths, pass the tendons of various muscles concerned in motions of the carpus and tarsus, and of their appending joints and phalanges. These bands furnish likewise points of attachment for the fasciæ that surround the arm and leg. At the wrist in the human subject, we need only here mention the *annular band*, or ligament, which at its broadest part is the breadth of a thumb, and which has the appellation of *anterior* or *posterior*, according to its aspect towards the palm, or towards the back of the hand; the former binds down and gives passage to the flexor tendons, the latter to the extensor tendons. Both ligaments are attached strongly to the articulations of the radius and ulna, and of the neighbouring bones of the carpus, which they assist in connecting. Again, at the ankle-joint observe the *deltoid* ligament descending from the inferior border of the *inner* ankle to the inner part of the astragulus and os calcis, to form a band for the tendons of the flexor longus digitorum, and of the tibialis posticus: also from beneath the *outer* ankle to the outer side of the os calcis a second band for the tendons of the peronii; and a third in front above the instep, situated between the ankles, and joining the former two, gives passage to the tendons of the proprius extensor pollicis pedis, and (through four distinct rings or sheaths) to the four tendons of the extensor longus digitorum.

Of Outline.

(259.) Among the *fasciæ*, or aponeuroses,* we may begin with noticing, 1. That of the occipito-frontalis muscle spread, tendinous, over the crown of the head. 2. That of the *temporalis* has been already named. (Art. 232.) 3. The *platysma myoides* may be here included, originating by extremely delicate fibres from the cellular membranous covering of the pectoralis and deltoides, and inserted into the skin and muscles of the lower jaw and cheek. Acting as a muscle, it draws downwards the skin of the cheek, and when the mouth is shut, draws the integuments of the neck upwards. It is introduced in this place from its inseparable connection with a thin fascia interwoven with its fibres, termed the *cervical* fascia, which binds down and invests the front and sides of the neck. Through this

* Such a view of the subject seems yet more necessary to Painting than to Sculpture, since the sculptor is not troubled, except occasionally, in relievo, by rules of linear perspective. But Painters are confined to a flat surface, and to only one aspect of the form which that surface is to represent. Painters, therefore, must be careful to keep the painted form within perspective rules, and must be carefol in proportion to their greater difficulties; for the Painter may be often overwhelmed with foreshortenings in cases for which a statuary has the advantage of actual measurement, and which, to the latter artist, may be the simplest cases possible. A method may here be mentioned, which we know has been successfully pursued. Let the human skeleton, or that of any animal, *drawn in some natural position*, be painted in oil upon a panel of sufficient dimensions to show distinctly the features, joints, and general character. When the Painting is sufficiently dry, rub the surface with a little finely powdered pumice-stone till it will admit a coat of water colour, prepared of any earth or ochre mixed with white chalk, to suit the tint of the intended subject: let the student then take his hair pencil, and with a full brush of colour lay *on* the various strata of the muscles; only in the inverse order to that adopted by an anatomist in dissecting them or taking them *off*: for the dissector, beginning, of necessity, with the outside, calls that outside coat the first layer of muscles; and so proceeds through the second and third layers till he reaches the fourth, which lies nearest to the bones. *Our* practitioner, on the contrary, may begin with the fourth, or with the third, of which he need not be very minutely careful, since those muscles are seldom subjects for the Painter; but to the second and to the first layer, since these give form to and partly constitute the superficial boundaries, he must pay diligent attention. It was with this view that we have endeavoured in the preceding columns to select, and to describe for him, the most remarkable of the superficial muscles, particularly in the human subject. He will scarcely find an easier mode of fixing in his memory, and of familiarizing to his eye, the shapes, use, origin, insertion, and situation of these all-important instruments of animal motion. A peculiar advantage of this method is, that the whole, or any part of the water colour may be at any time effaced with a wet sponge, when the painting of the bones will again reappear, and may again be coated with larger or with smaller muscles at pleasure. For the connection of the bones and muscles, see a short but complete Manual, 12mo. by J.F. South, 1828.

If further practice be desired in this way, let the student prepare dark tints, variously tempered with the lighter material, and proceed to shade every muscle according to its natural prominency and the degree of light introduced over each part of the figure. For this purpose, let him first draw, or paint in a skeleton form, any fine statue or group; and after carefully marking the position of the several joints and bony protuberances, cover the whole with muscles, as seen in the marble or cast before him. Oil paintings of skeletons from the antique, to be afterwards worked upon with water colour in the manner above suggested, might furnish useful practice for such as commence the Art. It will moreover be evident, that by varying to any required extent the posture of the skeleton animal, the foregoing method may be rendered universally useful to the drawing-school, for acquiring, in a shorter space of time than perhaps is usual, a more than usual acquaintance with Myology.

A very complete Work in folio was published at Paris in 1812, by Jean-Galbert Salvage, *Docteur en Médecin*, entitled *Anatomie du Gladiateur combatant;* the plates to which effectually illustrate the method of practice which we have recommended above. See also Tuson's *Myology Illustrated*, fol. 1825. On the same subject there is a Work translated from the German of Lavater, published in 1824 by Ackermann, expressly for artists.

* In various parts of the body the tendons may be seen expanding themselves into a broad flat membrane, and forming what is called an aponeurosis or fascia. The use of these fasciæ is to cover the muscles, and give attachment to many of their fibres: they also dip down between the muscles, and, forming partitions, adhere to the ridges of the bones, and thus prevent the muscles from starting or swelling too much when in violent action.

Painting. fascia and platysma, and in the direction of the sterno-hyoides muscle, is seen occasionally a convexity in the throat called the pomum Adami, generally larger in the male than female subject. 4. The *brachial* aponeurosis arises from the tendons of the latissimus dorsi and pectoralis muscles on each side of the arm-pit; also from the tendinous insertion of the deltoides; also at the back part of the arm, from the spine of the scapula (Art. 233) and the fascia of the infraspinatus. From these origins it expands, like a sleeve, downwards over the whole arm, enveloping the muscles, and covering the brachial vessels and nerves, where they descend along the inside of the limb. It becomes fixed below into the condyles of the humerus, and to the several neighbouring ligaments between the muscles, and then proceeds to form, 5. The *fascia of the forearm*, a strong and thick covering, but more especially so at the back of the limb. The tendinous investment, which in the upper joint or humerus was thin and weak, now becomes dense and powerful; it is attached to the condyles, and adheres firmly to the olecranon, or upward projection of the ulna. Behind the arm it is strengthened by fibres from the triceps extensor, and in front it appears a continuation, as has been said, of the brachial aponeurosis sent off from the biceps flexor cubiti. It descends over the forearm, binding down the muscles, and sending processes between them, and is continued below into the annular ligaments (Art. 258) of the wrist. From this tendinous bracelet at the wrist arises, 6. The *fascia palmaris*, which expanding over all the palm of the hand, is fixed to the roots of the fingers, splitting to transmit their tendons. It is strong and thick, and conceals the muscles of the hand, while it gives them powerful support. 7. In the region of the abdomen we have the fibres of the *obliquus externus* descendens terminating downwards in a broad thin aponeurosis assisting to support the viscera. 8. The *fascia lata* is a very strong, smooth, and tendinous expansion on the outer part of the femur. On the anterior and inner part it is very thin and of a cellular texture. It surrounds the femur, covers all the muscles, and is pierced by many small foramina for vessels and nerves. The fascia lata, as its name imports, is most extensively connected with bones, tendons, and ligaments in the abdominal region.* It receives a number of fibres from the muscle peculiar to it, called the tensor vaginæ femoris, and also from the tendon of the gluteus magnus. Below it adheres to the common tendon of the rectus and vasti muscles, and to an aponeurotic expansion over the knee-joint; and it is continued over the knee to be attached to the heads of the tibia and fibula, after which it forms, 9. The *fascia of the leg*; which is not only a prolongation of the fascia lata, but receives fibres from the tendons of the sartorius, gracilis, and semimembranosus, as well as from the tendinous expansions of the rectus and vasti femoris.* 10. Lastly, the *fascia plantaris* requires our notice, bearing some analogy to the fascia palmaris already described.†

Of Outline.

(260.) No apology can be necessary to the artistic inquirer, for our having given as minute attention as our limits will permit to the foregoing particulars. If intimate acquaintance with the superficial muscles be absolutely indispensable, there must likewise be still further occasion for a perfect knowledge of those parts which appear above the muscles. Not only the fasciæ we have been enumerating are essential characteristics of the external fabric, but a multitude of veins also which protrude themselves outside the surface of the fasciæ, and are seen through the skin.‡ We have already alluded to certain veins and arteries in the region of the head. (Art. 232.) In the arm we have yet to mention several cutaneous veins which ramify upon its fascia. The principal are the vena basilica, the vena cephalica, and the vena mediana major. 1. The *basilic* vein arises from a small vein, called the salvatella, outside of the little finger, then runs upwards inside of the forearm in two branches, which receive in their course a number of smaller ones; and which, from their proximity to the ulna, are called the anterior and posterior *ulnar veins*, the posterior being the largest. The basilic vein next passes over the fold of the arm, and is here joined by a vein, to be again noticed, called the median-basilic; it then becomes deeply seated, and disappears a little above the elbow-joint.§ 2. The *cephalic* vein commences also at the back of the hand by a plexus

Of cutaneous veins.

* In the upper and fore part of the femur it arises anteriorly from the spine of the ilium, from Poupart's ligament, and from the os pubis: on the inside of the femur it springs from the descending ramus of the os pubis, and from the ascending ramus and tuberosity of the ischium: behind the femur, and on the inside, it arises from the surface of the sacrum and coccyx, and is continuous with the cellular covering of the gluteus magnus, which muscle, however, is not bound by any distinct fascia or aponeurosis: it is at the anterior edge, and on the lower fibres of the gluteus magnus, that the commencement behind of the fascia lata appears. Thus extensive in its origin, the fascia passes down over the whole thigh, covering and enclosing the muscular mass, and sending septa, or processes, inwards through the femur, which form cellular sheaths for several of the muscles. By one of these processes, or laminæ, it is firmly fixed to the outer edge of the linea aspera. But the main body of the fascia does not give origin to muscular fibres, and is a complete *vagina* unattached.

* It adheres firmly to the heads of the tibia and fibula; and, in its passage downwards, adheres also to the inner edge of the front of the tibia, uniting itself inseparably with the periosteum: it entirely invests the leg, but is thickest in front; behind and at the lower part of the leg it is much thinner. It again becomes very strong where it passes over the ankle-joint, in consequence of its adhesions about the outer and inner malleolus: here it again joins the annular ligament already mentioned, (Art. 258,) which is described in the *London Dissector*, (a work to which we are indebted for the greater part of our information,) as being in fact only a thicker and stronger portion of the fascia of the leg. Below, and in front, the fascia of the leg terminates by a thin tendinous expansion that covers the instep; behind, it is lost insensibly on the heel; on the outer side it is connected with the sheath of the peronei muscles, and on the inside it is affixed to the internal annular ligament.

† It is a very strong tendinous expansion, which arises from the projecting extremity of the os calcis, and passes forward over the sole of the foot to cover and protect the muscles; it is triangular At its origin from the heel it is thick but narrow; afterwards it becomes broader and thinner as it proceeds under the foot, and is fixed to the head of each of the metatarsal bones by a process which, splitting, leaves room for the tendinous vessels and nerves to pass.

‡ Our limits will not permit such a comparative view as would include a description of these veins in quadrupeds, but the student will find, in pursuing the inquiry, that the parts of quadrupeds analogous to those in the human subject have similar fasciæ and veins, which, running over them, show, in like manner, their branches immediately under the skin; they are more or less visible according to circumstances. In general those vessels appear most distended and fullest in any member which lie lowest, and whose fluid contents, in finding their level, must accumulate by a force of gravity corresponding to the posture of the limb. For this reason, in quadrupeds, the pectoral and thoracic veins are conspicuous. Also any incidental stoppage of the circulation will cause a swollen appearance of the veins in that portion of the limb where an accumulation of blood is induced.

§ For examples of the basilic vein, see the Hercules Farnese, the Sleeping Faun, and the left arm of the Hæmon. The left hand of the Laocoon admirably exhibits the disposition of the veins; and must divide, with the foot of the Hercules the attention of every student in outline.

of veins, uniting into one trunk, named vena cephalica pollicis, situated between the thumb and metacarpal bone of the forefinger. Passing along the radial side of the arm it takes the name of the superficial *radial vein*, and receives cutaneous branches from both surfaces of the forearm. Ascending over the bend of the arm, near the outer condyle, it is joined at this point by the median-cephalic not yet noticed, and continues its course upwards near the outer border of the biceps flexor cubiti, and afterwards between the deltoides and pectoralis major, till it dips inwards under the armpit to enter the axillary vein. 3. The *median* vein is a trunk between the two former, supplied by several veins that run along the middle of the front, or flat side of the forearm, on a line with the palm of the hand. At the fold of the arm the mediana major divides into the two branches that have been mentioned; one of them, *mediana basilica*, being a junction obliquely with the basilic vein; the other, the *mediana cephalica*, with the cephalic. A third retiring branch, and therefore unimportant to the painter, sinks inwards to join the deeply-seated veins.

(261.) In the femoral extremity, the student will remark the vena saphena major and the vena saphena minor. 1. The *saphena major*,* commencing from veins on the inner side and forepart of the foot, is seen crossing over the inner ankle; then running upwards upon the inside of the tibia it ascends behind the inner condyle: it is next seen climbing up the inside of the knee and of the femur, under the name of the saphena interna. At its first appearance it is very distinct and superficial; but as it ascends the femur it becomes enveloped by the fibres of the fascia, and at length, about an inch and a half below Poupart's ligament, sinks beneath the falciform process of the fascia lata to join the femoral vein in the groin. In its course it is joined by several cutaneous veins from the thigh. 2. The *saphena minor*, or externa, is situated between the muscles of the calf and the fascia in front of the leg. It begins by cutaneous branches of many small veins on the outer ankle and outer side of the foot, and is seen ascending from the outer ankle over the tendo Achillis, and along the middle of the gastrocnemius muscle to join the popliteal vein. At first it is very visible in its course immediately under the skin, but in the upper part of the leg this vein sinks gradually between the laminæ of the fascia to enter the poples or hollow of the ham.

Outline of Landscape.

(262.) On the subject of Landscape we have here to perform our promise of giving some observations. The varieties of outline in Landscape result chiefly from changes of the season and of the weather, much after the same manner as the outlines of interior or in-door grouping result from the agency of human contrivance, and from gestures voluntary or involuntary.

Landscape has commonly been divided into foreground, off-scape, or middle ground, and distance. Of these three the middle ground, as it generally comprises the greatest number of distinguishable objects, is capable perhaps of the most interesting variety. To begin, however, with

1. The distance. Very remote objects are only and dimly visible in large masses. They consist chiefly of clouds and mountains, with occasionally the horizon formed by the surface of a lake, or of the sea, or of some wide flat moor-land. Lines representing the most distant clouds or waves will become, the more nearly they approach the horizontal line, more and more parallel to it. Objects at sea, as ships, &c., (if distant more than five miles from a spectator standing on the shore,) must be represented with their lower portions more or less beneath this intervening horizontal line of water. But observe that, in a hazy atmosphere, this horizontal line is higher than at other times, and at some little distance above the ordinary perspective horizon, (Art. 11,) a distance greater in proportion to the degree of haziness. The height of the horizontal line H L (plate i. fig. 1.) above *p o*, *i k*, or *a d*, the base or bottom of a picture, also depends upon the nature of the subjects to be introduced. If much foreground or middle ground be required, the eye of the spectator must be placed higher to command the view. The horizon of course rises with him. Some great authorities in landscape, Poussin, for example, have chosen to place the horizon about one-third from the top of the picture. This arrangement is favourable for the sublime effects of mountain scenery, and unfolds a kind of bird's eye view considerably below the level of the spectator's feet, or of the ground plane. Other great artists, as Claude of Lorraine, have placed their horizontal line about one-third from the bottom of their canvass, thus obtaining a larger portion of sky, and consequently of aerial light.

2. The foreground. The nearest objects have their outlines most distinctly marked, especially such as lie near C, (plate i. fig. 1,) the centre of the picture. We before observed (Art. 15) respecting the circle of vision, of which F R (plate ii. fig. 5) is diameter, as well as respecting the circle of distinct vision, of which V X is diameter, that within any given intervals, as V F, or X R, between the two circles, the objects become clear as they approach to C. Upon the same principle also, the distinctness of objects *within* the circle of distinct vision increases as they approach the same point C. Not only in the outline of figures or buildings, but in the foliage of trees, shrubs, or plants, undulations of water, &c., the most articulate and careful markings may be here required. Among foliage, close to the plane of the picture, an outline, even of leaves and flowers, may be occasionally given with good effect, provided they be kept to their natural size, determinable by the proportions of the principal distance. (Art. 39. *et seq.*) It is recommended for drawing readily the outlines of foliage, that the student previously apply himself to learn the touches of some able master. Besides many Works of modern Art for this purpose, good engravings from Titian, Caracchi, and Rubens, may supply examples. From Claude there is a very characteristic set of engravings by Earlom, the *Liber veritatis*. No sooner, however, is competent execution obtained in this branch of drawing, than the artist must resort to the book of Nature for the forms and characters of his trees. Not only must he select for himself such as present picturesque objects for study, but he must remark, with something of the eye of a naturalist, every peculiarity in the shape of bark or foliage, as well the usual height from the ground at which the main branches of each are seen to fork off from the trunk and at what angle.* Similar observations apply to the delineation of water, and the

* The saphena major runs differently in different individuals, but generally takes the course given to it in the legs of the Hercules Farnese and in the Sleeping Faun.

* The edition of the *Trattato della Pittura*, by Manzi, contains many remarkable observations from Da Vinci, on foliage and on Landscape generally, not before published.

Painting. more or less distinct outline of its waves. By the influence of wind it takes the direction of the waving line *i o* D, *i o* C, or *i o* B. (Plate xi. fig. 3.) The effect also of wind upon clouds is infinitely diversified. As a general rule, let the roundest and fullest portion of a cloud be that which, like the bosom of a sail, is furthest from the wind, and let its scattered portions be represented to windward. The same outline applies to the representation of smoke. Very high clouds assume a level form.

3. Respecting the middle-ground, which, as its name imports, is between the near-ground and the distance, the outlines are less articulated. They become more indistinct, more rounded, and more grouped in masses, in proportion as they recede from the eye. Large trees, which upon a closer view would show distinct branches, must now be massed into round or spheroidal forms. The surface of the roughest water, as it nears the horizon, approaches to a smooth line. In the middle-ground the same result of a foggy atmosphere may be shown by the same kind of enlargement in the size of objects, as was observed above respecting the effect of haze upon the horizon and objects in the distance. Observe also, that the sky over the middle-ground, like that over the distance and over the front or fore-ground of the picture, partakes in its outlines of the same general appearances as belong to the several districts immediately underneath it. Near the spectator the clouds are to be distinctly and carefully marked, though without hardness. Insensibly their articulations become less and less discernible, until, in the horizon, they may be said to melt into space.

(263.) Next to configuration we proposed to treat of *expression*.* That certain lines, curved lines, straight lines, or combinations of either, have the power of conveying through the eye impressions peculiar to each form, has long been a received theory. Like all theories, it may be absurdly overstrained. But nothing seems more probable than that out of the general appearances of nature to the sight and to the imagination, some general deductions have been tacitly and yet universally made by mankind, constituting the parent stock upon which systems of taste have been engrafted.* Of Outline

(264.) A perfectly straight line, however placed, whether alone or with other straight lines, in any direction, gives no idea of life or of voluntary motion.† Drawn horizontally (see note to Art. 263) it implies flatness, and quiescence, and rest. But it is the flatness and quiescence of no living thing.‡ It is the rest of death, or rather the fixedness of an object that neither has had, nor can be expected to have life. It marks, to

* It might, perhaps, be doubted whether expression comes properly under the head of outline. But experience decides otherwise. For let the merest novice in Art attempt the outline of any figure animate or inanimate. The first spectator to whom he submits his work, will immediately remark upon its merit as a resemblance intended to express some quality in the object represented. If the outline, for example, be of a human subject, some character is annexed to it. It is pronounced to be either young or old, handsome or deformed, pleasing or disagreeable, or is considered as expressing some particular sentiment of the mind, or some peculiar habit of the individual. If designed for a likeness, the critic instantly examines its proportions. The nose is too long or too broad; the eye too large, or too diminutive, or too prominent; the mouth nearer to the nostrils or to the chin; the lips wider, or thinner, or narrower, than in the life. Or, if the general likeness be admitted, then it is or is not flattering. The face is too cheerful or too thoughtful, too youthful, too handsome, or too otherwise. Or let the drawing be of a horse or cow, or any animal, its make, its breed, or other peculiarities will be observed upon, and its proportions inquired into, together with the aptitude of the limbs assigned by the draughtsman for its support, or for *expressing* any motion that may be represented. Even in viewing representations of inanimate objects throughout the world of Art or of Nature, the mind of the spectator passes judgment upon the *sort* of building, the *sort* of carriage, the *sort* of tree, &c., and the critic exclaims at once against the shape of such a mountain or of such a river, or of such a cloud that it is *unnatural*. All this criticism, be it observed, is called continually into exercise by mere outline; and whether the judgment passed be just or unjust, a proof is given that expression of some kind or of some degree belongs to this division of our inquiry.

* There appears no absurdity in maintaining, that as varieties of motion or position give to natural objects peculiar changes of conformation or outline, the lines which represent those changes should be conceived to have some necessary connection with the original movement or position so represented. Thus, whenever, as commonly it happens, during any violent action or agitation in nature, the objects convulsed and agitated take abrupt, irregular, and jagged forms; an association thereupon becomes established in the fancy of the spectator between such outlines and the scene of terror, or of confusion and wildness which they call up to his memory. The distorted features and startling gesture of a man phrenzied by passion; or, in a storm at sea, the tremendous declivity of waters alternately gulf and mountain, that rise like "Alps o'er Alps" in endless yawning curves of sharp-pointed waves; the zig-zag lightning; the confused intersection of innumerable lines among shivered masts and torn rigging; are likely to imprint themselves indelibly on the "mind's eye." Such lines, therefore, would come to be considered indicative of sudden motion or emotion, and classed in the alphabet of taste among appropriate characters for the terrific or the sublime. Let us next picture the opposite to such a scene: perfect calmness and placidity; a sky without a cloud; a horizontal line unbroken by either mountain or wave; no sign of movement any where. This straight, undeviating, horizontal line might very naturally be adopted for expressing rest or fixedness. And another straight line perpendicular to this, might, on similar principles, express firmness or security, namely, the general state of bodies resting perpendicularly upon horizontal bases. The impression, too, respecting security would be stronger as the base is extended. If, indeed, the straight line be seen inclined to the horizon, we, of necessity, regard the object as falling, or for a time only kept from falling, like the tottering wall of a dilapidated building. Thus, the straight lines at A and B (plate iv. fig. 2) inclined to the horizon C D indicate a propensity to fall: A toward C and B toward D. But let the lines A and B be joined at E, (fig. 3,) the idea of insecurity and dilapidation ceases, and the figure A E B supported on the base A B is endued with pyramidal stability.

† A straight line divided regularly denotes method and design, but is often too precise and formal for pictorial effect. Divided irregularly it denotes confusion; but divided so as that the parts shall bear a certain proportion to each other, it becomes agreeable: *e. g.* in a perspective of the wings and centre of the building, and in the forms of crystals, wherein the arrangement may be so wonderfully varied as to be pronounced beautiful. In living subjects a straight line combined with curves, indicates direct motion or instantaneous impulse by the extension of a limb: *e. g.* that of the index finger used in pointing, or the sudden spread of all the fingers in an action of surprise, apprehension, or terror.

‡ It is observable that in a state of perfect quiescence or sleep, the limbs of a living subject are considerably inflected. Animals most commonly will be seen sleeping or lying at rest with their legs gathered up. Sir Charles Bell remarks, in his *Essays on Expression*, (p. 184.) that there is a drawing together of the body and limbs in deep sleep, unless where mere gravitation stretches the legs, or where the posture of the sleeper prevents it. In death, he adds, the body is heavier, that is, the position of the limbs is more under the influence of mere gravitation. Rubens has given some very rude sketches to show that the elemental form of death is the straight line. The first effect of death is relaxation, but the second effect is stiffness and rigidity. But independently of this straightness and rigidity, there is a distinction between sleep and death, in posture as well as in colour and feature. In sleep there is a certain regard to convenience, and a uniform and gentle curve or flexure of the limbs; while in death there is entire reference, in the position, to the ground on which the body is laid. (See the first note to Art. 279.) The character is most distinctly marked by the position of the head and neck,

> ——— *lentaque colla*
> *Et captum letho ponit caput arma relinquens.*

Painting. the eye, a distinction between the barren impenetrable solid and the luxuriant vegetable; between the unyielding edges of a rock and the soft tendrils of the vine curling and bending over it. In order to be a sign of animated nature, a line must change its rectilinear state, and become a curve or succession of curves. The line designated by our inimitable Hogarth the "line of beauty," comes under this description. It contains no violent curve. It has no approaches to an angle, no breaks nor abruptnesses. But it expresses either easy, graceful, dignified motion, or the repose of conscious superiority.* To give it proper value, it should appear in the neighbourhood both of right lines and of circular undulations, or of lines more curved than itself. Placed near a right line, its gentle windings show more energy. Placed near lines of greater curvature than its own it becomes comparatively subdued. For this purpose,† the curved lines (in landscape and in architecture) which occasionally present themselves, may be so varied by Perspective, as to cooperate essentially towards graceful expression. The folds also of drapery may promote the same end,* and might be quoted to exemplify the

Of Outline.

* Hogarth, in his *Analysis of Beauty*, p. 37. concludes all visible objects whatsoever to be bounded and circumscribed by *the straight line* and *the circular line* with their different combinations and *variations*. He observes, that straight lines vary only in length, and therefore are least ornamental; that curves, as they can be varied in their degrees of curvature, as well as in their lengths, begin to be ornamental; that straight and curved lines joined vary more than curves alone, and become somewhat more ornamental: but that the waving line, or line of beauty, varying still more, being composed of two curves contrasted, becomes graceful, and leads the eye in a pleasing manner along the "continuity of its variety." He afterwards (p. 60.) exemplifies this, and supposes a small wire that has lost its spring, and so will retain every shape it is twisted into, to be held fast to the outside of the hip of an anatomical figure, and thence made to descend the other side of the femur obliquely over the calf of the leg down to the outer ankle, all the while pressed so closely as to touch and conform itself to the shape of every muscle it passes over. If this wire be then taken off and examined, it will be found that the uninterrupted flowing curve, which a living model might have given to it, is broken into many distinct and separate curves by the sharp indentures it has received at those points where it has been closely pressed in between the muscles. He next directs a similar wire to be in the same manner twisted round the same limb of a living subject, or of a fine statue, and observes, that no sharp indentations, or breaks, will attend this second experiment; that the changes in the shape of the wire are gradual and imperceptible, and that "the eye admires it, and glides easily along the varied wavings of its sweep." Mengs, the contemporary of Hogarth, and who was about the age of twenty-five when the latter, in his fifty-sixth year, published the *Analysis of Beauty*, has the same ideas conveyed thirty years afterwards in the more polished language of his posthumous editor, the Chevalier d'Azara. We quote the Italian edition of 1783, vol. ii. p. 244. *Le linee rette debbonsi convertire in andeggiate: la che non pregiudicherà alla forma principale, osservando che le porzioni di circolo tocchino in varj punti, distanze, ed elevazioni la retta, e non formino niun angolo, ma vadano continuamente alternando le* concavità *e le* convessità. *Una linea così fatta è la più a proposito per dar grazia ed eleganza al contorno.* Our own Flaxman (*Lectures*, p. 177.) gives one simple instance of opposition, and another of harmony, in lines. "Two equal curves, set with either their convex or concave faces to each other, produce opposition; but unite two curves of different size and segment, they will produce that harmonious line termed graceful in the human figure." It is to be remarked of Michael Angelo's drawing, that it is bold. His outlines are rounder than the lines of Raffaelle, which have more repose and grace. Rubens, says Mengs, (p. 296 of the volume just quoted,) by making his convex lines too round, produced vulgar and heavy forms. Correggio obtained the perfection of elegance and lightness by a proper union of convex with concave lines; while Caracci, his imitator, departed from this happy equilibrium by too great convexity.

† An acquaintance with Architecture is essential to the Painter. "Some of the best Painters of the English School," observes a judicious modern critic, himself one of its living ornaments, "discover a deficiency of knowledge in architecture, the more inexcusable because so easily supplied: but the prevalence of this defect is perhaps most glaringly displayed in our portraits. The pillar and the curtain shift from side to side of the picture in clumsy combination, through all the varieties of sameness, exposing at once our deficiency of other materials and our abuse of these. The works of the old masters show how assiduously they courted the assistance of this ally, and what they thought useful, we are not in a situation to disregard. Poussin and Paul Veronese were prodigal of their architectural knowledge, and often communicated an air of magnificence to their compositions, which raised the character of the subject by the dignity of the scene." *Elements of Art*, p. 90. note.

* Among the valuable Lectures of Flaxman is one on the subject of drapery, which the student of Outline will do well to study diligently. The Lecturer divides the mechanical structure of draperies as caused by the simple lines of their folds, into 1st. *The perpendicular fold*, hanging from one point. (Plate iii. fig. 18.) 2dly. *The succession of diagonal folds*, falling from each other hanging from two points, and which may be varied to a beautiful infinity; (plate iii. fig. 19.) for example, falling from the two points of the shoulders in the hollow of the back; or from the two shoulders over the projection of the breast and abdomen; falling from one shoulder, and from the lower arm making the principal folds below the elbow. And again, each of these may follow every change of position and motion. 3dly. *The cascade of diagonal* forms produced by the edges when diagonally folded towards the extremity. (See fig. 18, 19.) These three classes contain the principles of all folds, however produced, in all garments and draperies. Drapery, like all other bodies, is subject to the laws of gravity and motion by which it is affected according to its lightness or weight, strength or weakness, the repose or action of the wearer, and the force of wind; it is affected by these causes, simply or complexly, as it may be acted on by their separate or united force. The most simple forms of drapery are produced by the weight of the cloth itself, as it hangs from the most projecting points of the figure, and resembles a pointed arch reversed. A succession of such folds, broken into various lengths, and opposed in their diagonal forms, are among the boldest and most beautiful effects of drapery. The varieties produced from suspension are multiplied, and altered according to the portion of the figure they pass over, and according to the fineness or thickness of the cloth. If a garment, such as the Roman tunic, (in form nearly resembling a waggoner's frock,) be confined round the waist by a girdle, the folds will be of the inverted arch kind arising from the shoulders; and below the girdle they will fall in perpendicular masses of folds over the lower limbs, when the figure is not in action, or preparing for action. The sleeves, if full, will begin with folds falling from the shoulders before and behind, but these folds will be widened and changed into cross folds at the bend of the arm, and continue crossing the lower arm, more or less diagonally to its termination at the wrist. The folds become more or less diagonally spiral *from* the body if the arm is turned outward, and *toward* the body if the arm is turned inward. The folds on the back of the lower arm owe the upper portion of their direction to union with, or separation from, a projecting knobbed fold at the elbow. The same principles of folding on the arms will govern all coverings, from the fullest and most redundant, to the straightest and most exactly fitted to the limb. Respecting the effect of motion upon drapery, as soon as a limb is moved from a perpendicular into a horizontal direction, the drapery hanging on it changes the forms of its folds. The perpendicular folds bend by their weight into a curve, from the impulse of motion, or change from a perpendicular to the inverted arch: the strongest portion of the fold depending from the stronger of the two supporters, whether it be that part of the person which is in rest or that in motion. This is more particularly seen in the cloak or loose upper garment, but the principle is evident in all drapery worn by the human figure. For example, the lower portion of a tunic falls in perpendicular folds from the greatest projection in front of the figure, and becomes curved, clinging in the lower extremities to the unmoved leg, until that limb is set forward, when the same change is produced on the other side. This effect is still more evident in running, when the curved folds at last become horizontal, at right angles with the limbs. Motion of the figure affects the whole mass of drapery about the body; the folds are most interrupted and broken on the side moved in shortest space, as the curves are most lengthened on the side moved in a greater extent, and they are twisted most diagonally where there is the greatest power of motion. Upon the legs the folds change from downright to long curves, in walking or running alternately as one leg or the other is set forward. The greater quantity of folds naturally falls in the hollow spaces, and in quick motion the heavier portion of folds are left behind the figure by their own weight, in a

Painting. difference between an Outline, of abrupt motion, and of perfect rest. The flutter of a disordered dress placed upon the figure of Milton's personification of *Melancholy*, described as a

> ——— pensive Nun, devout and pure,
> Sober, steadfast, and demure,

would effectually destroy the charm of her pensiveness. The poet, addressing this fair creation of his fancy, desires her to

> ——— keep her wonted state
> With even step and musing gait,
> And looks commercing with the skies,
> Her rapt soul sitting in her eyes.

And he has accordingly clothed her as becomes her peaceful, solemn, contemplative character,

> ——— in robe of purest grain
> Flowing with majestic train,
> And sable stole of Cyprus lawn
> Over her decent shoulders drawn.

It is impossible to conceive the outlines of this robe of "divinest melancholy" as having any abruptnesses, or indeed as having many varieties of undulation. The stole, which the Lexicon of Facciolati, under the word *stola*, defines to be a matronly garment, *rugis plicisque abundans*, would doubtless have numerous folds descending on every side in long perpendicular lines, and bounded below by curves, of which the smoothness and regularity would, in our present example, indicate the almost motionless state of the wearer, "forgetting herself to marble."

(265.) It has been made a question, whether beauty of form and fine proportions* are essential to expression. To this it may be replied, that they are very excellent adjuncts when introduced with propriety, though many Of Outline.

diagonal curve, from the point on which they are supported. Lastly, with regard to the motion of drapery independent of the wearer, and caused by wind, of which the effects are more seen in those parts of the garment extended beyond the outline of the figure, observe the effects of wind on flexible and fluent bodies in general. The wind blowing on water, by pressure on a small portion of the fluid nearest, forces it into a wave, from resistance of a body of water not affected by the wind, on the other side of it: or else the wind, blowing obliquely on water, is resisted by the mass beneath until the surface is raised into a wave, which, bending over the wave before it, falls by the laws of gravitation into the surface again. There is a propensity to the same forms and successions in smoke, in clouds of the sky, and dust of the ground driven before the wind, and from the same causes. The pendant, or streamer, hanging from the top of a mast, is driven by the wind in the same direction, and may be represented by the same section as a succession of waves on the water. (Plate xi. fig. 3.) Progressive movement of the figure changes the perpendicular of falling folds into undulations. This is more evident as the motion becomes quicker. But the wind undulates all draperies; when moderate the undulation is diagonal, and when violent, it is horizontal. For further acquaintance with this subject consult Da Vinci. *Trattato della Pittura*, cap. 358—364; or in the edition of Manzi, p. 264—271.

* The following proportions are given by Watelet:—*Voici donc, d'après de Piles, quelques détails sur les proportions qui en donneront une idée à ceux qui ne les connoissent pas et qui ont peu de notions sur cet objet. Quant aux artistes s'ils ne s'en contentent pas, cette disposition tournera sans doute, au profit de leur instruction, parcequ'alors ils prendront eux-mêmes, le soin de mesurer les antiques dont les copies moulées sont assez justes, et de les comparer avec la nature bien choisie.*

Les anciens ont pour l'ordinaire donné huit têtes à leur figures, quoique quelqu'unes n'en ayent que sept; mais l'on divise ordinairement la figure en dix faces, savoir depuis le sommet de la tête jusqu'à la plante des pieds de la manière qui suit.

La partie qui s'étend depuis le sommet de la tête jusqu'au front est la troisième partie de la face.

La face commence à la naissance des cheveux qui sont sur le front et finit au bas du menton.

La face se divise en trois parties égales.

1. *La première contient le front.*
2. *La seconde le nez.*
3. *La troisième la bouche et le menton.*

Depuis le menton jusqu'à la fossette qui se trouve entre les clavicules, on compte deux longueurs de nez.

De la fossette, qui est entre les clavicules, au bas des mammelles, une face.

Du bas des mammelles au nombril une face. On observe que l'Apollon a la mesure d'un nez de plus.

Du nombril aux parties naturelles, une face. L'Apollon a encore dans cette dimension un nez de plus.

Des parties naturelles au dessus du genou, deux faces. On observe que le milieu du corps de la Vénus Medicis se trouve au dessus des parties naturelles, et Albert Durer le place ainsi dans les proportions qu'il prescrit pour les femmes, ce qu'approuve de Piles.

Le genou contient une demi-face.

Du bras de genou au coup de pied deux faces.

Du coup de pied au dessous de la plante une demi-face.

L'homme étendant les bras, est (si on le mesure du plus long doigt de la main droite à celui de la main gauche) aussi large qu'il est long. (Plate iv. fig. 8.)

D'un côté des mammelles à l'autre deux faces.

L'os du bras dit humerus *est long de deux faces depuis l'épaule jusqu'au bout du coude.*

De l'extrémite du coude à la première naissance du petit doigt, l'os appelle cubitus *avec partie de la main, contient deux faces.*

De l'emboîture de l'omoplate à la fossette d'entre les clavicules, une face.

Il faut observer que la différence qui se trouvera entre la largeur et la longueur du corps provient de ce que les emboîtures du coude avec l'humerus, et de l'humerus avec l'omoplate, emportent une demi-face, lorsque les bras sont étendus.

Le dessous du pied est la sixième partie de la figure.

La main est la longueur d'une face.

Le pouce est la longueur d'un nez.

Le dedans du bras, depuis l'endroit où se prend le muscle qui fait la mammelle, appelle pectoral, *jusqu'au milieu du bras, quatre longueurs de nez.*

Depuis le milieu du bras jusqu'à la naissance de la main, cinq longueurs de nez.

Le plus long doigt du pied a la longueur d'un nez.

Les deux bouts des mammelles et la fossette d'entre les clavicules de la femme, font un triangle equilatéral parfait.

Article de M. Watelet *sur proportion. Encyclopédie Méthodique. Beaux Arts.*

The Laws of Outline being common to Sculpture and to Painting, the following, from our own Flaxman, will be found no less useful than those of the above-named celebrated foreigner.

From the os pubis to the top of the head, one-half the length of the human figure.

From the same point to the sole of the foot, the other half.

From the acromion of the scapula to the bottom of the inner ankle there are three equal divisions. 1st. From the acromion to the point in the spine of the ilium, from which the rectus and sartorious muscles begin. 2dly, From thence to the top of the patella. 3dly, From the top of the patella to the bottom of the inner ankle.

From the bottom of the pubis to the bottom of the patella is the same length as from the bottom of the patella to the sole of the foot, two heads each; but we must observe, the Ancients generally allowed half a nose or more to the length of the lower limbs exceeding the length of the body and head.

Breadth.

Shoulders	2 heads.
Loins	1 head and 1 nose, or 5 noses.
Across the hips or trochanters	1 head 2 noses, or 1 head and ½.

Depth.

Chest	1 head 4 minutes.
Loins	3 noses and ½.
Glutæi	1 head.

Breadth of the Thigh.

Thigh	3 noses.
Calf of the leg	2 noses.
Foot	1 head and ½ of a nose long.

Length of the Arm.

From the top of the humerus to the bend of the arm	1 head and ½.
From the bend of the arm to the first knuckles	1 head and ½

Painting.

cases might be named in which they would destroy the truth and spirit of an historical picture. It would be as absurd to adapt the features of the Belvedere Apollo to the head of Socrates as it would to place the head of a dancing fawn upon the shoulders of Alcibiades. But where neither History nor Tradition have confined the Painter to a given set of features, he has opportunity of introducing such forms and proportions as unquestionably assist, though they do not constitute expression. Gracefulness, and the bodily signs or movements of intellectual beauty, are much more various than is commonly imagined.* Their number defies calculation. Their forms once discovered and attained may be measured and will be found symmetrical. But they are not attainable, that is, they are not discoverable by rule and compass. They baffle the mere copyist.* Yet without them all that Outline can do is mean, insipid, and powerless. How often do we see, in living subjects, limbs of fairest proportion that betray vulgarity and awkward unfitness for the part assigned them; and faces in which, though worthy to have been modelled in a Grecian mould, it pains us to discover no intelligence. The female form, above all, provided feminine expression be wanting, may be made as perfect in proportions as the chisel or the pencil can shape it; but the subject will not be beautiful, as far as intellectual beauty is concerned.

Of Outline.

(266.) We have now considered the animal frame with respect to its proportions, and their general aptitude for characteristic expression. But we must not quit the subject of Outline without remarking likewise upon the aptitude of animal forms for the various modes of progression or of rest peculiar to each. We need scarcely exhort the student to this deeply interesting study, as containing the most indispensable rudiments in the grammar of his Art. We desire our imperfect notice of it to be regarded as only pointing to the arduous road which his perseverance is to surmount. The varieties in this division of our subject are so numerous and complicated, that they drive brevity to despair, and bid defiance to classification. But we confine ourselves to the twelve following. 1. Standing. 2. Sitting, kneeling, or reclining. 3. Rising from a seat or from a recumbent posture. 4. Walking. 5. Running. 6. Dancing and leaping. 7. Climbing. 8. Pulling downwards, upwards, or horizontally. 9. Pushing in three similar directions. 10. Carrying weights. 11. Throwing any weight. 12. Falling.

Employment of the limbs and muscles upon posture and locomotion.

(267.) Previously to our notice of these particulars, it will be necessary to refer the reader to our pages on MECHANICS, and to remind him that within every substance or combination of substances, such as, in the present instance, any animal body, there is a point termed the *centre of gravity*, round which all the parts of a body balance each other, and through which, if a plane pass, the segments on each side will be of equal weight. With this point, or centre of gravity, once supported, the material substance remains balanced in any position. And the support may be given in two ways, either 1st, by suspending the substance from a line attached indifferently to any part of it; and in this case, the line by which it hangs being produced downwards, will contain in it the centre of gravity (MECHANICS, p. 34. sec. 116.) *below* the point of suspension. Or, 2dly, the support may be given by a prop from below.

Breadth.

Upper arm, front view	1 nose and ½.
Upper arm, side view	2 noses.
Lower arm, thickest part.....	1 nose and ½.
Wrist	1 nose.

The female figure should not be so tall as the male, the shoulders and loins should be narrower and the hips broader. The proportions of the Hercules Farnese and the Torso Belvedere, are nearly one-fifth more in breadth than those of other statues; but the Ancients varied the proportions according to the character and age of the person. There are examples of the Silenus and Hercules also, when he partook of the same character, extremely dwarfish, not exceeding four or five heads in height; and there are examples on some of the Greek vases of figures nine or ten heads high. *Lectures*, p. 30. The reader who desires an extensive examination on this subject may consult a publication (dedicated at Milan, 1811, to Canova,) by Giuseppe Bossi, and entitled *Discorso delle Opinioni di Lionardo da Vinci intorno alla Symmetra de' Corpi Umani.*

* The features of the human face, together with the forms and proportions of the body and limbs are, in particular Countries, subject to certain peculiarities, an agreement with or material deviation from which constitutes the local idea of beauty or deformity. The sculptors of ancient Greece seem to have diligently observed the forms and proportions constituting the European ideas of beauty, and upon them to have formed their statues. A slight deviation from these measures, by the predominancy of any feature, constitutes what is called *character*, serving to distinguish the owner thereof, and fix the idea of identity. This deviation or peculiarity aggravated, forms *caricatura*. See *An Essay on Comic Painting* in the *Antiquarian Repertory*, vol. i. p. 13. By F. Grose, F.A.S.

What Mr. Grose here applies to identity of person may also be affirmed respecting identity of expression. There are portions of the figure, the outlines of which are more or less adapted for expressing peculiar passions and sentiments, or peculiar endowments of the individual. A certain part of the face, for example, must be allowed its due proportion for the play of certain muscles indicative of certain intellectual or animal impressions and sympathies. Some features are best adapted for expressing fear, grief, anger, scorn, or jealousy; some for laughter and uproarious triumph; others for the serener qualities of meditation, of tenderness, of esteem, and the peaceful affections. A large mouth and large lower jaw indicate animality. In proportion, therefore, as the forehead is increased, the comparative size of the lower part of the head appears diminished and animality less indicated. This seems a good and sufficient reason for the Greek proportions. The lower half of the face could not be diminished without evident deformity, since, to be human, it must bear a certain proportion to the adjacent neck and shoulders. It remained, therefore, for the Greek artist, as his only alternative, to increase the upper portion of the head, preserving at the same time its oval form. The reader on this subject will find many judicious observations in Hogarth's Essay above quoted, which, though below criticism in regard to literary merit, contains much practical knowledge. "The Antinous," says he, "being allowed to have the justest proportion possible, let us see what addition upon the principle of quantity can be made to it without taking away, at the same time, any of its beauty." He then observes that an addition of dimensions to so beautiful a head would deform it; to the hands or feet would be gross and vulgar; to the length of the arms, would be dangling and awkward; to the length or breadth of the body, would be heavy and clumsy. The neck alone and the inferior extremities remain, to which he finds that not only certain additions may be admitted without a disagreeable effect; but that a greatness or dignity (conspicuous in the Apollo Belvedere) may be given to an already graceful human form. Much more may be read and collected on the same subject throughout the ingenious pages of Lavater, the contemporary of Hogarth, who at the time the latter published the analysis, was in his twelfth year. The work of Lavater coming from a man of erudition and very cultivated genius, is not so remarkable as the analysis of Hogarth, who, though the son of a schoolmaster, appears to have been as self-taught as Shakspeare is presumed to have been in *literis humanioribus.*

* Reynolds observes of Gainsborough, that he was certainly not indebted for grace and elegance to the Flemish School, nor indeed to any School. His gracefulness was not academical or antique, but selected by himself from the great school of Nature. And there are yet, adds Sir Joshua, a thousand graceful modes which are neither theirs nor his, but lie open in the multiplied scenes and figures of life to be brought out by skilful and faithful observers.—*Works*, vol. ii. p. 162.

Painting.

in which case the line of the sustaining force must be directed upwards, (as the line of suspension was downwards,) perpendicularly to the horizon, and being produced, will contain the centre of gravity *above* the fulcrum or sustaining point.*

Line of direction or of gravitation.

It is also to be recollected, that whatever be the number of these suspending cords affixed to the given point of attachment, or whatever the number of supporting fulcra at a point under the incumbent weight, a perpendicular line through the centre of gravity to the point of suspension above, or to the plane of the horizon below, will always express the *direction* in which the several suspending or sustaining forces must, to secure a balance, be applied. This *line of direction*, or of gravitation, as we prefer to call it, must fall within the base of any figure, that would be preserved from the fate of the unstable balance, or in other words, must fall within the line or lines joining the several points at which the supporting fulcra or props rest on the ground.†

Of Outline.

(268.) Another circumstance to be borne in mind is, that in the case of any thing added to the weight of a body, the centre of gravity varies its position within the combined mass, and moves towards the side where the addition is made. Hence it happens, that the centre of gravity in the human subject (as in all animals) varies according to the size and form of the bones, and the degree of fatness or leanness* prevailing in any particular part; also according to the addition of any appended substance, as clothes, armour, burthens, &c. But it will commonly be found in or near the acetabular line.† We proceed to take each case in the order proposed.

---

* The former of these two modes is called the stable balance, because the centre of gravity, whatever changes the body may undergo, will always take a position of stability under the point of suspension. Whereas, in the second mode, (called the unstable balance,) the centre of gravity will, at any the slightest variation in the weight supported, remove from its place above the *point d'appui*, and descend to take the lowest position.

† Let us survey the human structure architecturally. We see two pillars, each supported upon three arches, and above each pillar a beam attached by a hinge-joint, manageable by ropes and pullies. These two beams, at their upper ends, are placed under two arches, which unite at the back of the building, and support a large column. The column is of peculiar workmanship, being capable of bending to form a crane, or of being turned about in some degree like a revolving mast, and having two hanging towers suspended from it, the lowermost of which carries at each side certain projecting timbers, which like the yards of a ship (and more particularly the mizen gaff) may be raised or depressed at pleasure. From this mechanical sketch of the human body, the difficulties of preserving equilibrium in a fabric so complicated are manifest. In the instance of quadrupeds, where the body may rest or swing at its full length, upon four supporting pillars, there appears less danger of a fall. But in Man, with an erect head and trunk, resting one end upon two supports, that measure at least half his height, and upon a base which, when he trusts (as he must continually do) to one foot, is no broader than one-tenth of his height, a fall seems inevitable.

Such a view of zoological architecture, if we may so phrase it, may help the observer to remember universally that each limb has its own centre of gravity, and that whether it is moved by, or is a mover of the main body or of other limbs, it will, according to the position of its own centre of gravity, be more or less easily manageable. "The differences which we discern in the muscles of the lower extremity between Man and the other mammalia, arise out of that characteristic feature, which so strikingly distinguishes Man from all other animals, *viz.* his erect stature. In order to enable any animal to preserve the erect position the following conditions are required: 1st. That the parts of the body should be so disposed as to admit of being maintained with ease in a state of equilibrium; 2dly, that the muscles should have sufficient power to correct the deviations from this state; 3dly, that the centre of gravity of the whole body should fall within the space occupied by the feet; and, lastly, that the feet themselves should have a broad surface, resting firmly on the ground, and should admit of being, in a manner, fixed to the earth. All these circumstances are united in the necessary degree in Man only. The broader the surface included by the feet, the more securely will the line of gravity rest within that surface. The feet of Man are much broader than those of any animal, and admit of being separated more widely from each other. The sources of the latter prerogative reside in the superior breadth of the human pelvis, and in the length and obliquity of the neck of the femur, which, by throwing the body of the bone outwards, disengage it from the hip-joint. The whole *tarsus*, *metatarsus*, and *toes* rest on the ground in the human subject, but not in other animals. The simiæ and the bear have the end of the os calcis raised from the surface; while, on the contrary, it projects in Man, and its prominent portion has a most important share in supporting the back of the foot. The exterior margin of the foot rests chiefly on the ground in the simiæ, which circumstance leaves them a freer use of their thumb and long toes in seizing the branches of trees, &c.; and renders the organ so much the less adapted to support the body on level ground. The breadth of the human pelvis, also, affords a firm basis on which all the superior parts rest securely; the same part is so narrow in other animals, that the trunk represents an inverted pyramid; and there must consequently be great difficulty in maintaining it in a state of equilibrium, if it were possible for the animal to assume an erect position. In those instances where the pelvis is broader, the other conditions of the upright stature are absent; the bear, however, forms an exception to this observation, and admits of being taught to stand and walk erect, although the posture is manifestly inconvenient and irksome to the animal. The perpendicular position of the vertebral column under the centre of the basis cranii, and the direction of the eyes and mouth forwards would be as inconvenient to Man, if he went on all fours, as they are well adapted to his erect stature. In the former case he would not be able to look before him; and the great weight of the head, with the comparative weakness of the extensor muscles, and want of the ligamentum nuchæ, would render the elevation of that organ almost impossible. When quadrupeds endeavour to support themselves on the hind extremities, as for instance, for the purpose of seizing any objects with the fore feet, they rather sit down than assume the erect position. For they rest on the thighs as well as on the feet, and this can only be done where the forepart of the body is small, as in the simiæ, the squirrel, &c; in other cases, the animal is obliged also to support itself by the fore feet, as in the dog, cat, &c. The large and strong tail, in some instances, forms, as it were, a third foot, and thereby increases the surface for supporting the body, as in the kangaroo and jerboa. Various gradations may be observed in the mammalia, connecting Man to those animals which are strictly quadrupeds. The simiæ, which are by no means calculated for the erect position, are not, on the other hand, destined like the proper quadrupeds to go on all fours. They live in trees, where their front and hinder extremities are both employed in climbing, &c." Blumenbach's *Manual* by Lawrence, p. 309.

* In corpulent persons it has a tendency forward, which obliges them to throw back the head and shoulders and upper part of the spine to balance the obesity in front. This gives a consequential air, often bordering on the ludicrous, to fat people. On the contrary, in persons bending or stooping forwards, there is required to balance the protrusion of the upper part of the trunk a proportionate removal backwards of the nether part of the spine and loins. In proof of this, let the reader stand with his heels close to a wall, and endeavour to make a bow. Also in persons stooping sideways to pick up any thing the overhanging of the head and arm on that side must, in order to avoid a fall, be counterpoised by a corresponding extension on the other, of the arm, or leg, or haunches. Again, in like manner, among persons with a weight on one shoulder, their centre of gravity has a tendency to the loaded side, and would draw the line of gravitation out of the base, but for the exertion of the carrier, who inclines his head and thorax proportionably to the side opposite.

† This was the calculation of Borelli. We have given under MECHANICS, page 34. sec. 116, some methods of finding by experiment the centre of gravity in any substance. If the substance be successively suspended by several points and pierced by straight lines, in each case passing, in a vertical direction, through the point of suspension, it would be found that however numerous those lines might be they would all intersect in one point, which would be the centre of gravity of the body. Borelli ascertained that of the human body by one of the methods we have given: namely, by means of a wedge or prism. He thus explains himself. *Extense*

Painting. Of Outline.

1. Employment of the limbs and muscles in standing.

1. First, then, to consider the human figure in a standing posture. In order to represent a balance, there must be conceived to pass through the centre of gravity, a vertical plane dividing the mass to be supported into two equal portions. (Art. 267.) The base also of the supporting fulcra beneath must receive within it the line of direction or gravitation. As the simplest kind of example, let us suppose a figure standing perfectly still, and resting equally on both his feet, with the hands and arms pendent on each side. In this attitude each leg sustains an equal weight, impending on it from the body; and the pit of the sternum, between the claviculæ, hangs perpendicularly over the feet in a line of gravitation, of which the lower extremity touches the ground between the inner ankles. The mesial plane (Art. 226.) contains this line, and will bisect vertically the whole frame from the forehead downwards.* This, however, is not the ordinary position in standing. It requires effort, and becomes wearisome. To ease the muscles, the centre of gravity is removed to one side and placed over one foot.† For this purpose, the spine of the back is inflected to the side in question, and conveys so much of the head and shoulders over the supporting limb as will be necessary to balance the figure: which may again be equally divided, as before, by a plane passing through the centre of gravity, though not now the mesial plane.‡ This is the easy, unconstrained position of the Antinous, the Venus de Medicis, the Hercules Farnese, and others of the finest sculptured forms.*

2. Sitting, kneeling, or reclining.

(269.) 2. Sitting, kneeling, or reclining. The only difference between the balance here to be represented and that already described is, that a greater number of supports are given to the body.†

A sitting posture may be varied *ad infinitum*.‡ Its

homine nudo super tabulam planam in ejus medio supposui cuneum prismaticum triangularem ad fulciendam tabulam perpendiculariter in ejus centro gravitatis. Hæc tabula quiescebat æquilibrata quotiescunque fulcimentum cunei in puncto existente inter nates et pubem hominis super tabulam jacentis, pertingebat. Quare centrum gravitatis illius hominis in illo situ existebat. Pars 1ma. lib. xviii. *De Statione Animalium*, prop. 134.

* First of all, (to begin from below,) the gemellus, the solæus, the tibialis anticus, the peronei, the flexors of the toes, (Art. 256,) together with the lumbricales and interossei (Art. 245) pedis, plant each foot firmly on the ground. Next, each leg is kept steady in *front* by the extensors of the toes, by the peroneus tertius, and in some degree by the tibialis anticus; (Art. 256;) on its *outside* each leg is held up by the peronei longus and brevis, (*Ib.*) on its *inside*, by the tibialis anticus and posticus; (*Ib.*) and *posteriorly* by the gemellus and solæus, the semitendinosus, and the flexores longi. (*Ib.*) Four extensors (Art. 255) stretch the knee-joint, partly assisted by an occasioned flexor, the tensor vaginæ femoris. (*Ib.*) Next above these limbs, the balance of the trunk upon the heads of the femora is to be maintained: in front, by the sartorii, the recti, the psoæ, and the iliaci interni; (Art. 254;) posteriorly by the bicipites, the semitendinosi, and semimembranosi; (*Ib.*) externally by the glutei and tensores vaginæ femoris; (*Ib.*) and internally by the pectinei, the adductores femoris, and the graciles. (*Ib.*) Lastly, to keep the vertebral column erect, we have numerous muscles on the back, (Art. 253,) which greatly exceed in power those in front, (Art. 252,) in order that they may sustain the weight of the thorax and abdomen suspended upon them. In old age they lose their vigour, the back is drawn down and bended forwards. The sacral extremities, to compensate for this, are thrown back, and the knees inflected; until at length a staff becomes a necessary support. The same observation may be applied to the equilibrium of the head. The muscles for preventing its inclination forwards are much the strongest.

† The muscles are much fewer, and the muscular effort considerably less for standing on one extremity only than for a station upon two. To prevent the supporting limb from being drawn inwards, (or in a tibial direction,) its outward muscles are strongly contracted, as long as the centre of gravity is in transitu from the other limb. The leg or tibia (of the supporting limb) is accordingly drawn outwards by the peronei, (Art. 256,) by the vastus externus, and also partly by the rectus; (Art. 253;) while the weight of the superincumbent pelvis, with that of the body over it, are transferred (also outwards) by the tensor vaginæ femoris (Art. 254) and the glutei medius and minor (*Ib.*) Thus the muscles of one side only become thrown into action, and their power is simply balanced by a portion of the weight of the body towards the other side.

‡ Da Vinci, who though a skilful anatomist, was superior to all anatomical display in his Art, has left many useful rules in his Treatise on Painting respecting the equilibrium of the human body. He divides it into simple and compound. Simple equilibrium is exemplified when a man sustains only his own weight. In this situation, if the man stretch out an arm or both arms, or stoop forward, or stand erect, supporting his body on one foot, his centre of gravity will be found in a line perpendicular to the centre of that foot on which he rests, or, if his body rests equally on both feet, the centre of the trunk will lie perpendicularly over a base line joining the centres of the two feet. Compound equilibrium he explains to be that of a man carrying a burden: as, for example, the Hercules lifting up and crushing Antæus, where an equivalent to the weight of Antæus is caused by throwing back the upper part of the body of the hero behind the base line that connects his feet. See *Trattato della Pittura*, cap. 263. In another passage he observes, that the weight of the hand, when one arm is extended, has the effect of a weight at the end of a steel-yard; and that to preserve an equilibrium there is frequently a necessity of raising and suspending the heel on the opposite side, which thus obtains a counterpoise equivalent to the increased weight given to the arm and hand by their extension, cap. 350. See also cap. 201—204 and cap. 264.

* In standing, the legs naturally relieve each other, and thus divide the labour of supporting the body. A jaded horse will be often found resting the whole weight of his hind quarters upon one hind leg, while the other lifted and inflected hangs at rest and at liberty to recruit itself. The well-known position of a soldier standing "at ease" is adopted upon the same principle of alternation, which seems to pervade corporeal motions generally. Butler in his *Hudibras* thus describes the mutual good-will subsisting between the right and left leg:

> ——— in running, every pace
> Is but between two legs a race,
> In which both do their uttermost
> To get before, and win the post;
> Yet when they're at their race's ends
> They're still as kind and constant friends,
> And to relieve their weariness,
> By *turns give one another ease.*

We may here add, that the necessity for removing the centre of gravity in these cases directly over the supporting limb may be easily proved by any person attempting to stand on one foot, with its outer ankle touching the wall of a room. Such an act will be found impracticable. The wall is in the way, hindering the transmission of the centre of gravity to its proper place over the foot in question. (See second note to Art. 268.)

† In order to afford himself at any time an example of a reclining posture, the student need only sketch a figure in which the weight on one side has not been counterpoised by an equal weight on the other; a figure, consequently, of which the line of direction or gravitation falls without the base. Then on the same side with the line of gravitation, and still further without the base, let him place some new fulcrum or support: taking care that a line drawn from its point of contact with the ground to the points of contact of the other fulcra, shall include that line of direction. The figure, for example, of an old man to be drawn leaning on a staff would bend forward or to one side, having no strength to throw out a proper equivalent for balancing it on the side opposite. Consequently, his staff is necessary to his support, and must be so placed as that lines from its point of contact with the ground drawn to each of his feet shall form a base to include the line of gravitation. It is manifest that a figure leaning against a tree, a wall, a pillar, &c. must have its design or outline regulated by the same principle. The draughtsman must also exercise his judgment to express the due proportion of weight sustained by each leg, after deducting that quantity supported by the additional prop. In the act of kneeling on both knees, the line of gravitation must fall between them unless the shins or toes touch the ground, in which case it may fall any where between the femora. If only one knee be employed for support, lines drawn from it to the foot of the other leg, will give as before, the base of the figure. But if the hands or elbows form additional props, these also must be reckoned for, and lines accordingly drawn to form a base in the manner already suggested.

‡ In the sitting posture, observe that the centre of gravity common to the whole body is brought near to the base, but that the

Painting. simplest outline is that of a child resting almost solely on the os ischium, with its legs left to play at liberty, suspended from the acetabula, and with its trunk and superior extremities suspended from the vertebral column. To this lively subject may be presented a contrast as opposite as elastic childhood is to infirm and rigid age; namely, the case of sitting in an elbow-chair, with one side of the body or both supported by the aid of the ossa humeri, while the lower limbs, by alternate inflection or extension of the knees and feet, lend assistance to the torso. Here all that seems material to the representation of a just equilibrium, is that the chair or seat be firmly and evenly balanced, and not in the position represented by Hogarth in the chairing of his successful candidate.*

3 Rising from a seat, &c. (270.) 3. Rising from a seat, or from a recumbent posture. On the attitude of a person intending to rise from his knees, Da Vinci observes, (*Trattato della Pittura*, cap. 237.) that his first effort is to relieve one knee by removing his weight (or superincumbent centre of gravity) entirely over to the other knee. The leg at liberty having then no weight to lift but its own, raises its knee without difficulty, and plants its foot upon the ground. This operation over, the man, resting his hand upon the elevated knee, lifts his arm, head, and chest towards that side, and thus contrives to shift his whole weight over back again upon the firmly planted foot. On this foot as a fulcrum, and by means of its thigh-bone as a leaver, he raises himself. His body, in rising, draws up after it the inflected leg which, during the ascent, gradually extends itself till it stands upright beside the other.† The student will see that by giving the assistance of the hands or of other additional fulcra, this action may be varied in innumerable ways; and that the body while rising from any recumbent posture must be balanced in a similar manner.

Of Outline.

(271.) 4. Walking. This action, in the human subject, is the transfer of the line of gravitation (Art. 267.) alternately from one leg to the other, and during the transfer a simultaneous motion forwards propelling the common centre of gravity.* In this progressive process

4. Walking.

centre of gravity common to the head, trunk, and upper members, is at some point between the regions of the abdomen and thorax. The line of direction therefore from this point must fall within a base between the ossa ischii, else the trunk to be kept from falling will require to be suspended by the action of the strong dorsal and lumbar muscles attached to the back of the ilium, while that bone is kept steady by the antagonizing femoral muscles in front aided by the weight of the femora and legs. This will happen during an inflection of the spine sideways or backwards, but not forwards, in the same degree, unless in addition to the fulcra of the ossa ischii such a portion of the femora (as when the subject is seated in a chair) be added as will enlarge the base sufficiently to incline the line of direction. Note also, that in stooping to the right or left while the body rests on only one of the ossa ischii, a similar balance must be effected, as in the case of standing upon one foot. The only difference is, that in this case the leg is no longer a supporter, but is altogether a librator. If the sitter in stooping bend his body to the right, the left leg must be stretched proportionally to the left, and *vice versâ*. In this example, observe that the sitter is not permitted to hold by the chair or seat, which would be altogether a different case, and might be classed as a modification of climbing.

* In the reclining posture of the celebrated statue called by some the Dying Gladiator, and by some the Dying Soldier who brought news to Athens of the victory at Marathon. (Plut. *de Gloria Athenensium*, vol. ii. p 347.) The figure is supported by the right femur and part of the fibular side of the right leg. But as the body leans over to the right this base would be insufficient, since the line of direction falls without this base, and consequently the trunk would come to the ground but for the right arm, which being extended to the right beyond the line of direction, enlarges the base and forms a sufficient prop for the body. The left leg and left arm are at the same time extended to a certain degree, and form a counterpoise on the left side to the opposite inclination of the head and thorax. Observe in this statue an example of our remarks (notes to Art. 242) on drawing breath. The shoulders of the wounded man are raised, and the best position chosen for receiving air during the accumulation of blood which evidently keeps flowing within him, and must terminate in death.

One of the most graceful antique specimens of a recumbent figure is among the Elgin marbles; that of the "Ilissus," called by some the "Theseus."

† We extract the following from Barclay, *On Muscular Motion*, p. 290. "In rising from a chair, the centre of gravity must fall within the base upon which we are supported; and therefore this centre, by the inclination of the body or otherwise, must be brought to the base, the base brought to the centre of gravity, or both made to meet by mutual approach. Hence, in rising from a chair or sofa, where the femur and tibia were at right angles, the feet are drawn back, or the body is thrown forward, before we can assume the erect posture. In the changes of attitude while a bone is turning on its centre of motion, the centre itself is often at the same time describing either the segment of a circle, or a line composed of the segments of circles. Suppose A B (plate x. fig. 2.) represents the foot, B C the tibia, C D the femur, and D E trunk, and that the three last are to be brought by the action of their muscles to the perpendicular B F, so that B C shall occupy the situation of B G, C D the situation of G I, and D E the situation of I F; the point C on the centre B will move in the segment C G, and as C is changing its position in C G, the point D, which moves round the point C as its centre, will, if the extensions be regularly performed in the same time, describe such a curve as D I; for as the point D must necessarily move atlautad, (upwards,) and sternad, (forwards,) in order to preserve the centre of gravity, the general direction of its course must be known; and if C G be divided into equal parts, and at each of the divisions a circle described with the radius C D, the points in D I corresponding in number with the points in C G, and at equal distances in the sternal (forward) direction will each be found in the circumference of one of the circles described successively round the point C as it passes along the segment C G. In like manner, if the extensions of C D and D E be regularly performed in the same time, the point E will describe such a curve as E F, the points in E F being in the circumferences of the several circles successively described round the point D as it moves along the curve D I."

The author then proceeds to observe that the above figure explains also how the rapid extension of the several joints may carry the body directly upwards; the motions are backward and forward alternately, but all of them upward. If, therefore, the backward and forward motions be made to balance exactly their forces, the upward movement only will remain. On the other hand, if the respective motions backward and forward be equal in force, the body at the same time that it rises will have an inclination forward or backward in the direction of the prevailing force. (See MECHANICS, *Composition and Resolution of Forces*, sec. 19—27.)

That his illustrations might be less complex, Dr. Barclay supposes for the while the vertebral column to continue inflexible, and by its extension on the point D to be capable of forming a straight line with the femur and tibia. On this supposition, if a force were applied to the point F, it would press directly through the medium of the trunk on the femur and tibia to the point B. "But," he adds, "as the supposition is without foundation in nature, and as no two bones are ever known to form straight lines, or to be united by parallel surfaces of articulation, the pressure which one bone makes upon another must always be oblique. This causes them to turn on their centres of motion, and as their centres of motion are movable, to diffuse the pressure generally and suddenly through the whole system, and thus counteract with admirable contrivance the dangers of concussion. The curves D I and E F are merely the curves which bones describe in particular circumstances. With the assistance of movable centres, the bones, if properly directed, may be made to describe any species of line whatever, as must be evident from the motions of the hand, which has the power of following any line straight or curved that can possibly be drawn."

* The first motion in the standing figure throws the weight on one leg. The gravitating line falls, in consequence, from the gullet on that one leg, the shoulder on the same side being lowered, the shoulder on the opposite side raised, while the hip and knee sink below those of the side which supports the weight. Flaxman's *Lectures on Sculpture*, p. 127. But we will here translate from Borelli a more detailed description. At first view, says this venerable and often quoted authority, the progressive motion in Man may seem to resemble that of the pair of compasses B A C (plate iv. fig. 4.)

Painting. the arms are often as actively employed in balancing,* as the legs are in lifting and moving the body onwards.†

placed erect upon the plane of the horizon, and forming in that erect position the isosceles triangle A B C. Raise the foot C until the line of gravitation A D coincides with A B, which we may call the line of support, (*linea innixionis*,) and which then becomes perpendicular to the horizon. Then round A B as an axis let the limb A C describe the portion of a cone A C E. Next, having planted the limb A C in E, again raise the compasses until A E becomes perpendicular to the horizon. Let now the other side A B revolve, describing the arc B F, and in this way, by alternately making with one limb a perpendicular to the ground, and with the other a circular movement, a sort of progression may be produced. But as this mode of walking would have been equally unsightly and troublesome, Nature has provided for the machine of the human frame a plan of locomotion much easier and more graceful. Let, for instance, the feet of a man, standing, form at the points where they touch the ground, the isosceles triangle A B C. (Plate iv. fig. 5.) To change him from this fixed state, the lever or column of the foremost leg A B is made to revolve round a centre B in a plane perpendicular to the horizon, while, at the same instant, the entire frame R of the body is impelled forward in the direction K. These combined movements are effected as follows. When the foot L C becomes extended by the action of the solæus muscle, the angle A L C becomes an obtuse angle, and since the apex of the foot touches the ground at the point C, the length of the whole leg and hip is increased by the addition of C L, the length of the foot. During this process, the isosceles triangle above described alters its form and becomes a right-angled triangle at the moment when the leg A B stands perpendicularly on the horizontal plane. During this well-known movement the entire frame R being supported by two feet may easily be made so far to incline forwards, as that the leg A B may form a perpendicular support. By the very act also of extending the foot and the consequent elongation of A C, the ground receives a stroke from the apex C of the foot. The reaction arising from this impulse urges the machine R forward in the direction K, just as a barge impelled by a pole in the hands of a waterman is separated from the bank of a river. The impulse above described is materially assisted by a slight inclination forwards of the head and thorax towards K. By this movement the centre of gravity of the whole body, and consequently the line of gravitation, being brought outside the confines of the foot B O, exposes the whole to the risk of falling; and thus, by the law of gravitation, (*sponte suâ*,) and without further muscular effort, the weight of the frame R will be made to change its place. The danger, too, of falling is quickly provided against by raising the foot L C, and transferring it forwards with a brisk motion to K, beyond the limits of the line of gravitation. This done, the body returns to the station of firmness and safety in which it was originally supported; and by repeated renewals of the process above detailed, is maintained in a state of progression. *De Gressu Bipedum*, pars 1ma. prop. 156.

* Da Vinci instances the case of a person walking on a rope, who balances himself without a pole by means of his extended arms, cap. 198. Also see cap. 202. 208. 350. In a great number of animals, observes Dr. Barclay, that length of neck which is necessary for procuring their food, is regularly employed by the same animals in balancing their system: and even the most careless observer may have seen that birds employ it in changing the centre of gravity from their legs towards their wings, or from their wings towards their legs, according as they choose to walk or fly. p. 294. Butler in his picture of Hudibras, adheres with ludicrous accuracy to the laws of libration.

> His back or rather burden showed
> As if it stooped with its own load,
> To poise which equally he bore
> A paunch of the same bulk before,
> Which still he had a special care
> To keep well crammed with thrifty fare, &c.

† This is the duty of the solæus muscle acting by its tendon (tendo Achillis) upon the lever of the foot. We need scarcely remind the reader that the contracting power of a muscle is always nearest to that part of it termed its origin, and furthest from that part called its insertion: nor that the bones are acted upon by the muscles as levers are by a given mechanic power. Of the three levers (see MECHANICS, sec 138. p. 43.) examples to our purpose may be easily given. 1. In levers of the first kind, (with the fulcrum between the power and weight as in the application of a crowbar,) we have an example in the movement of the head forwards and backwards upon the first of the cervical vertebræ, which forms the fulcrum or centre of motion on either side of which the mastoid and the occipital muscles are alternately opposed to the head's weight. Another example is seen in the act of straightening the body or lifting it up after having inclined it forwards in making a bow. The power is in the muscles attached to the os ilium, the fulcrum is in the pelvis, (or rather the fulcra are the points where the acetabula rest on the bones of the femora,) and the weight is the upper part of the body which has been previously inclined forward. 2. The second kind of lever when the weight is between the fulcrum and power is exemplified in the act of standing on tiptoe. The power is in the muscle (solæus) at the back of the heel. The weight is that of the body over the arch of the foot, and the props are the toes. This lever is also constantly employed for propelling the centre of gravity in running or walking. It is exemplified in the legs of birds and in the hinder legs of quadrupeds. 3. The third kind of lever with the power between the prop and weight is most common. It is shown in raising a weight on the palm of the hand, and bending the arm at the elbow-joint. The power of the biceps muscle acts between the hand and elbow. (Art. 243, 244.) This kind of lever is used perpetually in the limbs. And although, of the three, it incurs the greatest expense of power, that disadvantage is compensated by the additional celerity it affords.

While the body is balanced on one leg, the other is propelled by contracting the gemellus, the solæus, the semitendinosus, the tibialis anticus, and the tibialis posticus. The tibia is, at the same moment, raised by the extensors of the knee while the entire leg is lifted and extended by the psoas, the iliacus, the pectinæus, the triceps adductor, the sartorius, and the gracilis, aided by the tensor vaginæ femoris.* Observe also, (Da Vinci, cap. 208. 295. 299.) that in proportion to the speed of the walker his line of direction or gravitation will be found to fall more or less forward. A slow pace will require it to lie very little forward. But it must lie considerably forward in a person walking swiftly or against the wind.† Of Outline.

(272.) 5. Running. The centre of gravity‡ is here 5. Running.

* If we conceive the left leg to be thus raised and propelled, (as that of an infantry soldier preparing to march,) it is now ready to plant itself before the right at the usual interval of a foot's pace, and under the centre of gravity, which meanwhile has been urged forward and downward by the psoæ and the iliaci interni, in conjunction with the recti and obliqui abdominis. The left knee is here for an instant slightly inflected, the better to receive the incumbent weight, and then the right limb, with its toes forcibly pressed by their flexors against the ground, proceeds to repeat a similar succession of movements as soon as the left leg becomes in its turn firmly stationed.

† It is further to be noticed, that in all biped animals, whether men or birds, a remarkably characteristic depression and contraction take place on the side to which the supporting limb belongs, while on the opposite side we see a corresponding elevation and elongation; the humerus raised, the hip and knee lowered. The height of quadrupeds also varies in the moving animal more than in the same animal at rest. Their legs first touch in an oblique direction, but afterwards being extended in propelling the body, they are brought to make perpendiculars with the horizon, and must in doing so, elevate the parts immediately above them. Da Vinci, *Trattato della Pittura*, cap. 195. 249. 268. 199.

‡ The centre of gravity, in the progression of the human subject, may be compared to a ball shifted alternately from one hand to the other, while the hand that is to receive the ball keeps continually advancing. In like manner, the legs, or abdominal extremities, advance alternately in pursuit of the centre of gravity, which may be said to be *handed* over from one side to the other, and which in proportion as the head and shoulders incline further forward, requires to be pursued and caught up with the greater swiftness and promptitude by the limb below. Care, however, must be taken, that the centre of gravity, in running, be only inclined in such a direction forwards, that the suspended foot may plant itself favourably under it in order to progression. Otherwise there will be the appearance of either staggering or falling. Let the student never fail to observe throughout every movement or posture of the body that the curves of the spinal column cooperate with the flexure of the supporting limb or limbs to balance the whole system. The changes of position, Dr Barclay well observes, are never accidental effects, but are always evidently adapted to one end, *viz.* the equilibrium of the body. This accounts for the serpentine shape of a well-formed spine, which (viewed from behind) is always, 1. convex from the os coccyx to the junction of the os sacrum with the ilia; then 2dly, concave from that part of the sacrum upwards to near the true ribs·

Painting. thrown considerably more forward than in the movement last described, and the line of gravitation falls so much beyond the supporting foot, that an immediate fall would ensue but for the rapid approach of the suspended limb;* which no sooner reaches the ground, than a similar aid is again required from its fellow. To walk or to Of Outline

then, 3dly, convex as far as the neck; then, 4thly, concave again till it reach the atlas. The first of these spinal curves (that of the sacrum) is caused by the spinal column pressing upon the upper extremity of the sacrum, and at its other extremity by the force of the gluteus magnus, while its middle part receives a rounded shape from the resistance of the ilia. The second curve is caused by the sacro lumbales and longissimi dorsi constantly employed in raising the trunk from the horizontal to the erect position, as well as in preventing the centre of gravity from getting too forward. The third curve (that of the thorax) is caused by the pressure of the head and shoulders, and the necessity for throwing them back to sustain the centre of gravity which lies in front of the centre of motion. Lastly, the curve of the neck is caused by its dorsal muscles, which are more numerous and more powerful than those in front. Had the spine been straight, the centre of gravity would, of necessity, have been so restricted in its range backward or forward, that the man could not with steadiness have supported the trunk of his body on its sacral extremities, during the extension of the hip and the knee-joints. It is the duty of the latter and of the joint at the ankle to cooperate with the curvatures of the vertebral column. And like those curvatures the joints in question are alternately concave and convex. Thus an extensive range of movement is obtained, and a greater facility in balancing. Just as in the case of a rope-dancer, who walks a rope with greater or less ease according to the length of the pole.

In the vertebral column of quadrupeds or of birds, nothing is to be found bearing resemblance to the three first named of these curvatures, that occupy in the human spine, the sacral, lumbar, and thoracic regions. Since animals seldom assume the erect posture, their more usual centres of gravity and centres of motion are not situated as in the human subject. Hence, in quadrupeds, that remarkable difference in the spinous processes of their movable vertebræ. In Man these processes all incline towards the sacrum. They are drawn towards one particular point while the body passes from a horizontal to an erect position, or they are balanced upon that point by the muscular force of the upright figure. Towards that point accordingly, the first of the spinous processes of the sacrum is sometimes directed upward. In quadrupeds a different appearance of the spinous processes arises from the same cause. They are inclined regularly (both the dorsal and lumbar) to a point near the middle of the spine—a point forming the common centre of motion between the two extremities of the trunk, that are alternately raised and depressed in progressive motion. The muscles chiefly employed in producing these inclinations are the latissimi, and the longissimi dorsi, the sacrolumbales, the semispinales, and the multifidi spinæ. The three first draw the spinous processes upward, or towards the head of the animal; the two last draw them downward, or towards its sacrum.

* On the motion of quadrupeds we translate as follows from Borelli, pars 1ma *de incessu Quadrupedum*, cap. 20. prop. 165. A notion, he observes, has prevailed, that animals move forward two feet alternately while the other two remain at rest, in a way resembling the walk of bipeds; who support themselves on one limb during the advancement of the other. Taking this for granted, the Ancients have told us, that quadrupeds, in standing, make on a plane surface the quadrilateral figure A B C D. (Plate vi. fig. 5.) They might see that in a gallop, (plate vi. fig. 4,) the fore feet, A B, are lifted together, and together moved forwards, while at the same time both the hinder feet, C D, rest upon the ground E F. The feet A B next reach the ground, when instantly afterwards the hinder legs C D, are lifted in their turn, and together moved forward towards A B. And in this manner the quadrilateral figure A B C D, by its successive contractions and dilatations, performs what in horses and dogs we term running.

In the action of *walking*, however, or *going at a foot's* pace, it is evident that neither the two anterior limbs nor the two posterior are lifted and advanced at the same moment. They are moved alternately. When A, for example, is advanced, B is quiescent, and *vice versâ*, when B is put forward, A rests on the ground and supports the body. But it is not equally easy to distinguish what may be the order of movement generally, and what relation the motions of the hinder and of the anterior limbs bear to one another; whether, for example, the two near feet A and D move together, or whether A moves at the same time with C. The rapidity of the movement in Nature, would make this a matter difficult of decision. Philosophers, accordingly, prepared themselves to solve the question by reasoning as follows. If the two feet A and D (on the near side) should be raised together and lifted forward at the same time, the animal would tumble and come to the ground on that near side. Therefore, say they, it must stand to reason that the off fore foot B (*dexter anticus*) must be lifted and advanced together with the near hind foot D, (fig. 5,) that so those feet of the animal which are diametrically opposed may at the same moment be together in a state of rest or together in a state of motion.

I am surprised, continues this learned Naturalist, that the difficulty and absurdity which such a movement involves, have escaped observation. They grant that an animal in motion must be steadily balanced lest it should stagger or fall. And this is given as a reason why the animal cannot move at the same time the feet A and D on the same side; because in case of such a movement the centre of gravity of the oblong body, and consequently its line of gravitation, would be perpendicularly either over the right line B C, where the two off feet form the support of the body, or on one side of it as towards A D, in which latter circumstance the animal would come down on that side. But let it be considered that when, at the same time, the two feet B and D, diametrically opposed, are lifted and propelled, the whole incumbent weight of the animal must still rest upon the two feet planted on the ground; in which case the line of gravitation will fall perpendicularly, not over a wide space, (*spatium amplum*,) but over the line A C. The animal will therefore stagger and vacillate as much here as in the circumstances before dreaded, and its position be equally hazardous or unsteady. Next let us observe the arrangement of the feet after the first movement has been made: after, for example, the foot B has been transferred to K, and the foot D to S. The two near feet A and S become now contiguous: while K and C on the off side are as remote from each other as possible, so that the four feet of the animal lie at the three angles of a triangle, of which the base K C is the longest side, and A B the shortest altitude. A position this far from any thing like firmness. And from this position, after moving the feet C and A and transplanting them to I and V, the animal would return to its original quadrangular station of safety I S V K, similar to A B C D. These alternate positions of safety and of peril would have been unworthy the wisdom of Nature in a case where it is easy to have avoided them.

The author then, in the proposition next following, explains thus the mode by which progression takes place in quadrupeds. Let the oblong frame of the body of a horse, (plate vi. fig. 6,) supported on its four tulera or legs, (which rest, like four columns, on A, B, C, and D, their points of contact with the ground,) be understood to cover the four angles of a quadrilateral figure or rectangle. The line of gravitation will fall perpendicularly upon E, near the centre of the quadrangle. This position of the animal will, consequently, be the firmest possible.

The movement forwards commences from one of the hinder feet, suppose C; which is, in this example, the near hind foot, and which by a back-stroke, or powerful pressure backwards against the ground, advances forcibly the line of gravitation from E to G. This done, the foot B is suddenly lifted and transferred onward as far as H. This transposition is easily made, because the line of gravitation in the first instance falls within the triangle A B D, and in the second it falls within the trapezium A B F D. In the former case it is supported by three, and in the latter by four columns. While now the three feet A D F remain planted firmly on the ground, comprehending within their three points of contact upon it the extremity G of the line of gravitation, the near fore foot B (*anterior pes sinister*) is next planted on H, and the line of gravitation, by the continuance of the impetus before received, is now transferred to I, namely, to the centre of the rhombus A H F D. Thus is completed the progressive impulse on the near side by means of the two near legs; and no sooner is it completed than D, the off hind foot, gives in its turn a push or back-stroke to the ground, and advances, as well as the off fore foot A, to take up a new position.

What we are here explaining, continues Borelli, in animals, is not a movement of all their parts at once urged forward with an equal velocity, and in one and the same direction, as happens in the act of flying, of jumping, or of vermicular progression, (*reptatio*,) but is rather a movement resulting from the transfer of the weight of certain parts, while supported upon other parts which remain at rest, so that the *progressing* animal may be said to advance while *standing*, (*stans—progreditur*.) This continued support, and this transfer of its weight in the progression of the animal should be liable to no shiftings or risk of injury, but should be firm and steadfast; effected by a sufficient muscular power; and by no more than is sufficient, *i. e.* by the least possible labour. But in order that every risk of falling may be provided against, there is a necessity that the number of props or sup

Painting. stand against a high wind requires the same sort of inclination of the upper portion of the body.*

(273.) 6. Dancing and leaping. A hop differs little from a leap, except in being performed on one foot. In both actions the body is inclined forwards or sideways, according to the distance as well as according to the direction of the proposed saltus or saltatio. The greater that proposed distance,* the greater will be the inflection of the pelvic extremities. In both cases also there is an inflection of the ankle, knee, and hip joints previous to the sudden extension of them which causes the spring from off the ground.† Of Outline.

porting columns should be more than two; and should consist of four, or at least of three, within which the line of gravitation (drawn perpendicularly from the centre of gravity in the body of the animal) must be included. All these important purposes are answered in the mode of progression above detailed. Moreover the movement of the entire animal frame is easily accomplished in the manner stated; because its entire weight has no need of being held suspended or lifted from the ground. The only weight requiring suspension is that of the one limb to be moved and advanced. First of all the centre of gravity is shifted forward by an impulse proceeding from the hind foot; an impulse not attempted by either of the two fore feet, because pressure from either of these upon the ground in front would drive the centre of gravity backward instead of anteriorly; but such an impulse as has been described proceeding from an elongation of the hind leg, acting like a pole in the hands of a waterman. The whole animal frame through this contrivance is impelled forward by the inflection of three upright columns; just as any vehicle is propelled by the wheels which support it. Again, observe, that in the suspension of the hinder foot through the action of the flexor muscles on the joints required; and afterwards in the advancement, on the same side of the animal, of its fore foot; the advantages of facility and speed must make the necessity of such a mode of operation quite apparent.

We need only remark on the foregoing statement of this acute Philosopher, that the truth of his system is very plainly distinguishable in the *walk* of a horse, but that if Borelli ever rode out with his patroness, Christina of Sweden, and that they put their horses to a *trot*, he must have observed the near foot C (plate vi. fig. 6) of her Majesty's courser, on striking the ground, so *immediately followed* by the stroke of the off hind foot D, as to give the appearance of a simultaneous impulse. And there can be no doubt that in a quick movement. the limb D is on its way to take up a new position before the limb B has reached the ground at H. Consequently in representing rapid progression, the feet diagonally opposed may be shown raised off the ground together; although the foremost of them must, according to Borelli, be always nearest the ground so as to strike it first. This position of the quadruped balanced upon two legs is undoubtedly unsteady, and would never take place in progressing slowly, as in walking. But during a brisk trot the suspended limbs (one on the near, the other on the off side) act as librators, and form an equipoise to each other, which is so momentary as never to be hazardous as long as the muscles play freely. Borelli admits that the muscles in brisk action have greater facility of balancing than when comparatively quiescent. He remarks in another place, that when dogs attempt to stand on their hind toes, (see plate vi. fig. 8,) or horses on their hind hoofs, they speedily come to the ground, having no power of remaining steady in an erect position; but they have power of walking in that erect manner, because in the course of locomotion they may balance *a vacillation towards one side by an opposite leaning towards the other:* just as boys go about, and even run, supported by stilts. but cannot remain quiescent without tumbling immediately. Book i. p. 173. Horses are sometimes trained (by tying their near or their off legs together) to practise a kind of ambling trot. This is an easy pace for the rider, but is not natural to the animal. Perhaps the steed of her Majesty of Sweden was so trained. It is remarkable that the plate in Borelli's Work represents the animal supported on *two* legs.

* In running, the lumbar vertebræ are placed as in stooping; the whole spine makes an angle with the sacropubic line; (Art. 248;) the recti cruris, the psoæ, and the iliaci draw the trunk forward and incline it to the pelvis. The femur is, at the same time, inflected by the psoæ and iliaci; the tibia by the semitendinosus, semimembranosus, and biceps; also the foot and its phalanges are inflected and make angles with the metatarsal bones by the action of the tibialis anticus, by that of the extensors (great and small) of the toes, and by that of the extensor of the great toe. This bending of the phalanges is indispensable to running, as also the inclination of the trunk, which inclination, in a walk, varies from a stoop to the upright posture, but in running is continual. Remark also that the centre of gravity never rests during the race for an instant, but bounds forward in alternate undulations from side to side, varying its situation according to the balance of the figure by its thoracic extremities. Observe as the right foot strikes the ground the right shoulder lowered, the right arm advanced and its fore arm inflected; the left shoulder raised, the left arm thrown back, and its fore arm extended. Reverse these positions when the left foot strikes the ground.

* The elasticity of the cartilaginous part of the limbs is called forth in dancing and leaping as in running, and distinguishes all these movements from the more deliberate process of walking. The centre of gravity in those more lively movements is no longer quietly and insensibly transferred from the right to the left side, or *vice versâ*; but is throwu off as by the action of a spring, with a jerk-like impetus, which, in the trot of quadrupeds, is very perceivable. The fore foot in trotting reaches the ground with such force as excites reaction, and for a time suspends the forward movement; until the back-stroke from the hind leg diagonally opposite takes effect, and again with a sharp jerk propels the centre of gravity. The same observation applies to the gallop, during which the spring-like reaction is caused by both fore legs instead of one, and counteracted by the propelling impulse of both the hinder limbs.

The tiptoe position in dancing is the work of the extensors, (Art. 256,) together with the tibialis anticus, (*ib.*) while the peronæus (*ib.*) turns out the toes and points them. Dancing requires the simultaneous exertion of a great number of muscles. Those of the trunk and superior extremities are employed in balancing the figure and keeping it erect; those of the leg and inferior extremities are chiefly employed in various modifications of the several motions that have been particularized. (Art. 254, 255, 256.)

In leaping, the impetus, says Da Vinci, (cap. 260.) is accompanied by a rapid extension of the body immediately after having been bent, like a spring, at the joints of the hip, knees, and ankles. During this extension the body describes an oblique line. It is carried by one force upwards and by another forwards; between which two forces it moves in the curve of a large arch, such as may be seen described by the feet of the person leaping. "In preparing to take the spring, the body and thighs are drawn together. The muscles of the leg draw up the heel, so that the figure rests on the ball of the foot. The arms are thrown back. They assist, like wings, in the impulse. When the figure alights, the arms are raised above the head, and the centre of gravity" (line of gravitation) "is near the heels." Flaxman, p. 128. For accomplishing the motions above-named, we observe that the solæus, the tibialis anticus and posticus, and the peronæi, (Art. 256,) are first employed to tighten the sole of the foot. The extensors elevate at the same time the phalanges digitorum pedis. (*Ib.*) Then follows a strong propelling impulse to the body from the two first-named of these muscles. And last of all, a sudden contraction of the cruræi, or crurales, (Art. 255, note,) impels the femur upwards; and a similar contraction of the glutæi, the semitendinosi, and the bicipites (Art. 254) gives a similar upward spring to the pelvis.

† We translate as follows from Borelli, pars 1ma. *de Saltu*, prop. 172 and 173. Let A B C (plate iv. fig. 7) represent a bended bow placed in an erect position round the joint (*nodus*) B, and resting upon the ground at C. Let F E be its line of gravitation, and let it be suddenly widened by the contraction of the cord G Q H placed at its outside edge. The result will be to make the bow spring from the ground. The bow accordingly, and its centre of gravity, will by that impetus be transplanted from the ground towards F. (Compare note to Art. 270.) This movement is no other than that of leaping, to illustrate which in the human figure we have but to add two other bows, H V X and N D E, acting simultaneously and conjointly with A B C, and place the extremity of the lowest bow on the ground at E. A B will represent the spine; B V the line of the femora; V D of the legs; and D E of the feet. Let, next, A B E (plate iv. fig. 6) represent the frame of the human body standing as at No. 1, in an erect posture, *viz.* with the bones of the legs, femora, and spine extended (as nearly as may be) in a right line; as so many pillars one above the other, resting perpendicularly on the ground R S. The common centre of gravity G will in this case be distant from the ground the length of the lower extremities. Next let the posture be changed for that represented in No. 2, where the several joints at B, C, and D are bent so as to make acute angles. By this inflection the distance G E of the centre of gravity from the ground is lessened by about the length of a leg; or by only one half of its former distance while the man stood erect. If during this position a contraction be suddenly and forcibly made (at one and the same instant) of the glutæi, the vasti, and solæi muscles, the result will be

Painting.

(274.) 7. Climbing. This attitude includes both the methods stated in Art. 267, for supporting the centre of gravity. The superior extremities are employed in suspending the body; the inferior, in their ordinary capacity of fulcra, or sustaining props, beneath it. The chief consideration for the artist is to give (as in the recumbent posture, Art. 269) neither more nor less action to the muscles of any limb than is necessary for the work it has to do, but to divide the weight naturally and suitably between the several suspending or sustaining limbs.

8. Pulling downwards, upwards, or horizontally. In these movements, wherever great strength is required, the arms are assisted by the weight of the body. If the pull is downwards the action resembles that of climbing, and the body is placed as nearly under the object pulled as is practicable. If the pull is made either upwards or horizontally, the feet are if possible so planted as that the object pulled might be seen by the figure himself between them. The horizontal direction, however, does not always afford to the feet a station so advantageous. They are therefore brought forward as nearly in the direction of the object as the nature of the ground permits.*

9. Pushing in three similar directions. The available muscular force for these motions being upon the whole weaker than for those last mentioned, greater effort must be exhibited for pushing any object than there would be for pulling one of the same weight.

(275.) 10. Carrying any weight. "The centre of gravity," observes Flaxman, "is the centre of the incumbent weight falling between the feet, if supported by both, or on the supporting foot." By the "incumbent weight" must be understood the weight of the body of the carrier joined to that of the burden. It is, says Da Vinci, necessary to equilibrium that so much of the weight of the carrier's body be thrown on the side opposite to that which bears the burden as may amount to a counterpoise; consequently the line of direction or gravitation will not fall from a point in the centre of the burden, unless the latter be considerable.†

11. Throwing any weight, or striking. To either of these operations the lower limbs are often as essential as the upper. The right hand is generally most employed; and, in the case of striking or of throwing any thing in a forward direction is powerfully assisted by the left leg and foot, which must be advanced in the direction of the blow.‡ If, however, the blow be given backwards, the longer sweep may be obtained for the right arm by advancing the right foot. A blow forwards with the left hand requires, for the same reason, the advancement of the right foot.

Of Composition.

12. Falling. In order to represent a falling figure, and without any part at rest, let that portion of it which is heaviest be seen to sink most, or be on its way to be lowest. The appearance of any figure previous to a fall may be easily given by transgression of any of the above rules of libration.*

We have now bestowed upon the details of Outline so much of our allotted space, as leaves us incapable of touching otherwise than briefly on the divisions that remain of the subject. But we have not limits for a perfect Treatise; and we prefer being, if possible, practically serviceable on one or two essential points, to the likelihood of being superficial upon all.†

Composition so defined as to include the contrivance as well as the performance of a work.

(276.) Composition is that exercise of the Art which *puts together*‡ the materials of which we have hitherto been examining some individual elements. To composition belongs not only the grouping and judicious arrangement of outlines, but also the use of that relief and force, and increased power of expression derived to outline from the aids of chiaroscuro and colouring. Under this one general term, *Composition*, we would include all that relates to the formation or execution of a picture: from its earliest existence in the fancy of its author to its perfect completion upon his canvass;§ all that can

---

that the three *bows* A B C, B C D, and C D E will expand with great force. Through the reaction of the ground, the centre G of gravity will be impelled upwards to F. And because this movement is the consequence of an impetus, which acting uniformly in one direction cannot cease of itself; therefore it will of necessity raise the weight of the man's body clear of contact with the ground, and carry it upwards with a spring through a certain space, until the gradually increasing power of gravity equals the projectile power. From what has been said above, it is plain that three bows in the human subject are in constant exercise. They are not put into action through their natural hardness or elasticity, (*materiali duritia et tensione*,) but by the voluntary action of the extensor muscles.

* Da Vinci, *della Pittura*, cap. 234, 235.

† *Ibid.* cap. 200. 206. 207. 263. 350.

‡ *Ibid.* 261, 262. It is justly remarked of that admirable figure called the Fighting Gladiator, or Lesser Ajax, that the right hand could not strike a blow while the right leg is in the position represented by the sculptor. The left arm, on the contrary, if a shield were upon it, is admirably placed for warding off a stroke, and for protecting any supposed object beneath it.

* A flying figure is opposed to the foregoing. It has no apparent support, yet the heaviest part of it must be represented rising or mounting upwards. The frescos of the Italian fathers of Painting exhibit examples, never to be surpassed, of the flying figure.

† "The port-crayon," observes Sir Joshua Reynolds, addressing himself to the students of 1769, "ought to be for ever in your hands. Various methods will occur to you by which facility of drawing may be acquired. I would particularly recommend that after your return from the academy, (where I suppose your attendance to be constant,) you would endeavour to draw the figure by memory. I will even venture to add, that by perseverance in this custom, you will be able to draw the human figure tolerably correct, with as little effort of the mind as is required to trace with a pen the letters of the alphabet." Reynolds, *Works*, (Malone's 8vo. edition,) vol. i. p. 40.

‡ See our Lexicon for the words Compone and Compose. Also Johnson's *Dictionary*, folio edition, for the fifth meaning of the word *composition*.

§ Bardon, in his vocabulary prefixed to his *Histoire Universel relatif aux Arts*, 8vo. 1765, thus defines invention: *Qualité dépendante du génie. Elle trouve les choses que la composition arrange.* Du Fresnoy also considers invention separately from composition, and calls it the first part of Painting. *Picturæ prima pars inventio.* See Reynolds, *Works*, vol. iii. p. 35. Dryden in his parallel, in the same volume, p. 256, between Poetry and Painting, says, invention is the first part of, and absolutely necessary to them both. Yet no rule ever was or can be given how to compass it. A happy genius is the gift of Nature. How to improve it many books can teach us; how to obtain it, none. That nothing can be done without it all agree. *Tu nihil invitâ dices faciesve Minervâ.* Without invention a Painter is but a copier, and a Poet but a plagiary of others. Under this head of invention, he adds, is placed the disposition of the work to put all things in a beautiful order and harmony, that the whole may be of a piece. The composition of the Painter should be conformable to the text of ancient authors, and to the custom of the times. And this is exactly the same in Poetry. As in the composition of a picture (p. 258) the Painter is to take care that nothing enter into it which is not proper or convenient to the subject, so, likewise, is the Poet to reject all incidents which are foreign to his Poem. Sir Joshua Reynolds, at p. 107, gives a more practical definition. The invention of a Painter, he says, "consists not in inventing the subject, but in a capacity of forming in his imagination the subject in a manner best accommodated to his Art, though wholly borrowed from Poets, Historians, or popular tradition. For this purpose he has full as much to do, and perhaps more, than if the very story was invented: for he is bound to follow the ideas which he has received, and to translate them (if I may use the expression) into another Art. In this translation the Painter's

Painting.

employ his powers of invention and imitation, whether upon combinations selected from a well-stored mind, or upon objects as presented immediately to his eye. This extended view of composition in Painting combines a consideration of the influence it is designed to have on the spectator, with the various operations of the Painter's own head and hand for this purpose.* We confine ourselves at the same time to—

Of Composition.

I. The representative powers and moral purposes of the Art.

II. The objects to be represented.

III. The means, rules, or modes of representation.

invention lies; he must, in a manner, recast the whole, and model it in his own imagination. To make it a Painter's nourishment, it must pass through a Painter's mind. Having received an idea of the pathetic and grand in *intellect*; he has next to consider how to make it correspond with what is touching and awful to the *eye*, which is a business by itself. But here begins, what in the language of Painters, is called Invention, which includes not only the composition, or the putting the whole together, and the disposition of every individual part; but likewise the management of the background, the effect of light and shadow, and the attitude of every figure or animal that is introduced or makes a part of the work." Fuseli, in his third Lecture, p 110, adverts to a question whether it be within the artist's province or not to find or to combine a subject from himself, without having recourse to tradition or the stores of History and Poetry. Why not, he exclaims, if the subject be within the limits of Art and the combinations of Nature; though it should have escaped observation? In his fifth Lecture he calls composition, in its stricter sense, *the dresser of invention:* and observes that composition superintends the disposition of the invented materials. Opie, in p. 65 of his Lectures, the successor of Fuseli, thus expresses himself on the same subject. "Invention as a general power depends on the command of a large fund of ideas, and an intuitive readiness of associating and combining them in every way possible. As a technical power, invention consists not in composing in the first instance the story to be represented, but in seizing at once on the peculiar and prominent feature of the subject; placing it in the noblest and most interesting point of view; taking in all that belongs to the time and place chosen; discriminating the characters; entering into their situation, circumstances, and relations; and all this with a reference at the same time to the genius and powers of the Art by which they are to be embodied. The author of the *Elements of Art*, p. 206, has a note to the following effect: "The conception of a subject, story, or plot; the discovery and connection of such events and circumstances as are best calculated to convey whatever moral the Poet and the Painter design to express, must be considered the first and highest effort of invention. From this point the Painter and the Poet start in different directions; each to run his particular career. The subject as conceived in the Painter's mind must now be transferred to the material upon which he works, and such an arrangement made of the figures and objects connected with it, as may be most judiciously adapted to strike the eye and the mind of the beholder. This second operation is called disposition or composition."

The reader who examines and compares together the foregoing eminent authorities, cannot but be struck with the similitude between the definitions of invention and of composition. He will see that the invention of a picture is no other than the composition of it in the mind before being transmitted to the canvass; and that what is termed by some the composition of a picture, is in fact that very same invention or mental composition exhibited afterwards to the eye under appropriate forms and colours. By making, therefore, composition the generic term, and including under it the two processes; first, of the Painter's mind, and secondly, of his pencil; processes which, distinct as they are, ought never to be separated, may we not simplify to the student what seems to have admitted of occasional mystification? There does not appear much difficulty in comprehending that a selection being first made of such particulars as are proper to be represented by the Art, is next to be followed by a selection of suitable materials and modes of representation.

* Every Art that addresses itself to the imagination necessarily involves three considerations. 1. Susceptibility of the artist to receive from Nature and from education impressions of beauty and sublimity. 2. Susceptibility of the spectator, reader, or auditor to comprehend and sympathize with the artist. 3. Skill in the artist in the selection and use of materials for exciting that susceptibility of the spectator, reader, or auditor. In some Arts, as in Music, or in Dramatic Poetry, a fourth consideration is important to success, namely; 4. Skill in the performer to comprehend and execute the work of his composer. Other Arts, as Painting, Sculpture, Architecture, &c., most generally unite the offices of composer and performer in one and the same individual. Applying, then, the three first-named particulars to the theory and practice of Painting; we observe,

1. Respecting the susceptibilities requisite for the student, he must to succeed in this arduous profession answer to a description given in the Lectures of a late celebrated professor. "He must not be one who has mistaken a pretty kind of imitative monkey-talent for genius; one who has taken up the Art to get rid of what he thinks a more vulgar or disagreeable occupation—or merely on the supposition of finding an easy amusement: but he must be such a one as is impelled by no consideration but a real unconquerable passion for excellence; one who undismayed looks all difficulties in the face; to whom obstacles are a stimulus; who receives fire from what quenches others—one in short, who is prepared to sacrifice time, ease, pleasure, and profit, and devote his entire self to the Art." (Opie, *Lectures*, p. 20. 21.)

We may further remark that to the imagination of a Poet, the Painter of History must unite a peculiar talent for dramatic or scenic effect; a nice perception and ready invention for such incidents as are termed "By-play" in the phraseology of the stage. For the Painter is to do with his colours what the actor must perpetually do with his person, namely, express by actions, looks, and gesture alone the sense, design, and spirit of his author. Where an incident is discovered in which at one and the same instant a number of very significant actions, or else one simple burst of expression can be produced to explain, at a glance, the story: such an incident may form a proper subject for Painting or Sculpture. In our allusion, however, to scenic talent, we mean a much higher degree of it than perhaps theatrical representation often admits of. Sir Joshua Reynolds (*Works*, vol. ii. p. 133) observes upon "the necessity," in theatrical performances, "that every thing should be raised and enlarged beyond its natural state; that the full effect may come home to the spectator, which otherwise would be lost in the comparatively extensive space of the theatre. Hence the deliberate and stately step, the studied grace of action, which seems to enlarge the dimensions of the actor, and alone to fill the stage. All this, though right and proper in its place, would appear affected and ridiculous in a private room, (*quid enim deformius quam scenam in vitam transferre.*) We have no idea of recommending theatrical subjects for the student in Historical Painting. On the contrary, we join heartily in the opinion of the lively author of *Elements of Art*, where he remarks, that the "taste of the historical artist too often receives a bias which materially affects the conduct and character of his work. He finds it impossible to get out of the theatre, he cannot separate in his imagination the natural situation from the dramatic exhibition, nor extricate his pencil from those accessories of scenic extravagance, which, mingling with all his conceptions, pervert the purity of his Art, and destroy the simplicity of Nature." In the same note, the author, alluding to the French School, describes the Gallican critics as having "lost all relish for the plainer fare of Painting; and once accustomed to theatrical luxuries, as beginning to think the unostentatious dignity of Raffaelle and the Roman School, tame and inspid." (p. 309. 311.)

2. The next consideration is, how far spectators possess the faculty of entering into the meaning of the artist, and of sympathizing with the emotions he expresses. This is a most important circumstance to every aspirant for pictorial fame. He cannot, he ought not to be deaf to praise from his contemporaries. To be admired he must choose popular subjects. Yet how often may he monopolize admiration by committing, in contradiction perhaps to his own judgment, enormous outrages upon truth and Nature! In this dilemma he must frequently tax his ingenuity to the utmost, and must select the least absurd among popular absurdities. He must endeavour to put himself in the situation of the most judicious among his judges. He is like a writer, who, for the approbation of judicious readers, is expected at all events to write common sense, and to use language that is intelligible; but yet that his readers may be kept awake, he must not fail to interest as well as to convince them, to arrest their imaginations as well as lead their judgment, and to appeal effectually to their sensibility.

3. With regard to the materials for exciting the susceptibility of a spectator, it is proper here to repeat a remark made by the best writers on Art, that, for the purposes of Painting, a sufficient degree of verisimilitude in any picture, is to be obtained rather by faithful adherence to the general character of objects, than by excessive attention to details. We therefore scarcely need to say, that in using the terms "Truth" and "Nature" as applied to Painting, we

Painting.

Of these three divisions, the first relates chiefly to the attractions of Painting for the eye or mind of the spectator; the other two to the labours and the judgment of the artist. The second regards more especially his choice of materials drawn from observation of Nature: and the third is connected principally with such methods of pictorial arrangement as result from exploring with critical industry the works of other hands, and combining their experience with his own.

I. Representative powers and moral purposes of Painting.

(277.) i. The first of these particulars demands careful attention and investigation from every composer in this, or indeed in any Art. We have here only room for a brief caution to every aspirant after mastery in pictorial composition to avoid attempting more than the limits of Painting are competent to attain. If his ultimate ambition be to instruct, to attract, and to amuse, he must aim first of all to be intelligible. In his choice of a subject, as well as in his treatment of it, he must address himself to the prepossessions, to the habits and mind of his spectator.* Whoever would obtain the power of impressing his contemporaries will not employ obsolete terms; will not adapt the language

Of Composition.

do not mean such an imitation as merely serves to deceive the beholder into a belief that it is no imitation. Nobody in his senses ever expects a picture to be the thing which it cannot be, the thing represented. This would be like believing Kemble to be the real Coriolanus! Such a transubstantiation would remove all the pleasure which the mind receives from tracing a resemblance, and from pursuing the infinitely varied associations which that resemblance calls up. But by attention to Truth and Nature, we mean absence of affectation and excess, as well in colouring as in drawing, and an accurate observance of those delicate gradations which the tints and forms and shadows of Nature universally unfold. In a word, we mean a chaste and scrupulous adherence to the "modesty of Nature."

* "Every Art," says Sir Joshua Reynolds, "like our own, (vol i. p. 225.) has *fluctuating* as well as *fixed* principles. An attentive inquiry into the difference between them enables us to determine how far we are influenced by custom and habit, and what is fixed in the nature of things. To distinguish how much has solid foundation we may have recourse to the same proof by which some hold that wit ought to be tried—whether it preserves itself when translated. The wit is false which can subsist only in one language: and the picture which pleases only one age or nation, owes its reception to some local or accidental association of ideas."

Agreeably to this doctrine it will be proper for every artist to make himself acquainted with the nature and origin of those conventional licenses which have been transmitted from one Age to another, and how many of them retain their hold upon his patrons and admirers. In any Art which, for the amusement, or, as it may be, instruction of mankind, practises upon their imaginations, it must be always important to ascertain, how far the parties to be amused will consent to enter into the delusion; how much of the improbable, or of the marvellous they only tolerate, and how much they eagerly expect. Something more, it is evident, must be granted to the contriver of a work of Art, besides our good-natured supposition, that the object contrived represents a real existence. We must be prepared to grant likewise, that the object is employed in some act, or occupies some situation which we consider, or have been taught to consider suitable to its character. Shakspeare's Witches were, in Shakspeare's time, considered as the representation of a sort of beings actually existing. But the master pencil of that great observer of Nature was careful to represent them conformably to the prevailing notion of the fantastic pursuits in which those formidable personages were said and were believed by the nurses in the time of James I., and doubtless by King Jamie himself, to employ themselves. The nurseries of the XIXth century seem to be losing, one by one, the venerable hobgoblins which supplied such fruitful materials for the sublime and the terrific to the imagination of our forefathers.

Great licenses were permitted to the early schools, and have been continued more or less to their succeeding followers. But that these liberties are becoming less and less endurable in the progress of modern society may be fairly augured from some extracts which we quote from vol. iii. p. 564 of the *Manchester Transactions*. Quotations from the same paper have been dispersed in almost every periodical notice of the Arts, since its publication, and may be said to have "gone the round" of the Encyclopædias. We are inclined to an opinion that many of the absurd licenses there exposed arose not merely from literary or scientific deficiency, and from a want of greater refinement in manners, but also not unfrequently from the barbarous taste of patrons who accepted flattery at the risk of perpetuating absurdity. The paper in question comments with some severity upon Raffaelle in his Cartoons, "introducing monks and Swiss guards; putting into a boat more figures than it is evident the boat could contain;" making "Pope Julius II. present at the chastisement of Heliodorus," recorded in the third chapter of the second book of *Maccabees;* introducing Venetian senators while Pope Alexander excommunicates Barbarossa; and bringing together in the School of Athens, Aristotle, Plato, Dante, and Petrarch. "In like manner," continues the writer, "when the same great master paints the dreams of Joseph and his fellow-prisoner over their heads; when similar contrivances are used by Albani, Parmeggiano, and Fuseli; is it not evident that real and feigned existences are unnaturally introduced in one narration? When Polydore chooses to represent the death of Cato, and exposes the hero of the piece with his bowels gushing out; when Paul Veronese, at a banquet, painted with his usual magnificence, places before us a dog gnawing a bone, &c.; when the same first-rate artist introduces Benedictine monks at the marriage of Cana; and, in a picture of the Crucifixion, puts Roman soldiers in the jerkins of the XVIth century, and adorns their heads with turbans; when Guido, in a Painting of Jesus appearing to his Mother, places St. Charles Borromée in a kind of desk in the back-ground as witness to the interview; when Tintoret, at the miraculous fall of manna, arms the Israelites with fusils; and Correggio appoints St. Jerome as the instructor of the child Jesus, common sense revolts at the impropriety, and exclaims, *Quicquid ostendis mihi sic, incredulus odi.* The mythological taste of the learned Poussin is well known; but Rubens seems to claim the merit of having presented to the world a still greater number of supreme absurdities in this learned style; nor is it easy to conceive a more heterogeneous mixture of circumstances, real and imaginary, sacred and profane, than the Luxembourg Gallery and the other works of that great master perpetually exhibit." The writer next proceeds, without any respect for national prejudices, to criminate Sir Joshua Reynolds: but we forbear; and only remark, that we might quote also foreign authors on Art, to prove a similar strain of criticism to be gaining prevalence among our continental neighbours.

Raffaello, says Milizia, (in his *Dizionario delle Belle Arti*, vol. i. p. 219.) *è mirabile nell' espressione d'ogni suo assunto, di ciascuna figura, di ciascun accessorio. Ma con que' suoi Giuli II. e Leoni X. fatti intervenire dove non potevan essere, ha egli conservata la convenienza?* See also the works of Chevreau for other examples.

These therefore are licenses which, at the present day, would be abandoned; notwithstanding the high and, in most respects, excellent authority of Sir J. Reynolds, "one is," says he, "so much used to anachronism in church pictures, that it ceases to be an object of criticism." vol. ii p. 314.

Neither does Sir Joshua's defence of Allegorical Painting (vol. i. p. 214) seem likely to preserve this style of Art from decline. "If Allegorical Painting," he observes, "produces a greater variety of ideal beauty, a richer, a more various and delightful composition, and gives to the artist a greater opportunity of exhibiting his skill; all the interest he wishes for is accomplished. Such a picture not only attracts but fixes the attention." But what if Allegory belongs more to the *fluctuating* than to the *fixed* principles of the Art—to borrow again Sir Joshua's words as quoted at the commencement of this note? What if the public taste, we mean the taste of well-educated multitudes, either rejects or only tolerates Allegory? A Poet does not compose only for Poets, nor a Painter paint only for Painters. Let us hear, however, the judicious advice of one of Sir Joshua's successors on this subject. "Man and Nature," he observes, "are the great objects of the Painter; and though he is competent to ascend with the Poet to the wildest regions of fancy, and people with a new creation an imaginary world, yet human events and human passions furnish him with the materials most congenial with the powers of his Art, as well as most conducive to those moral effects which it is so admirably calculated to produce." (*Elements of Art*, p. 358.) Hayley has not unhappily termed those pictures in which Allegory is employed "painted riddles." This, observes the writer just quoted, seems a condemnation too unqualified. Allegory, like all the other instruments of Painting and Poetry, may be injudiciously managed; but in skilful hands it is capable of being made an ingenious and efficient vehicle of refined sentiment and moral truth. The Painter, however, should *be cautious in the use of it.* An Allegory which does not explain itself to

Painting. of his Art to superstitions long ago forgotten or exploded, or to a state of society in other times* entirely different from his own.

Again, in another respect, some control over the flights of the pencil is necessary. There may be sometimes danger of attempting to invade the province of other Arts. No attempt can be more fatal to the invader. The province of this Art, rich and ample, and beautiful as it is, has its boundaries. An historian or biographer, or chronicler of legends, or novelist, of epic poet, can describe to us a succession of events; a dramatist can put that succession of events before us in a sort of living picture on the stage. But the Painter has no such power.* His composition restrained to one point of time cannot prepare us by those previous details of character which give interest to the story. For these details he must be indebted to what passes in the minds of us spectators, either from our legendary knowledge of the subject painted, or from the course of our experience.† Of Composition.

a spectator of ordinary discernment and information, is an enigma that conceals the truth which it was intended to display. The impression of the subject is weakened by the effort that is required to understand it: and he whose work must be accompanied by an explanatory dissertation may deserve the praise of learning and ingenuity, but he will neither command the attention, nor interest the feelings of the public.

An Allegorical Poem or Picture, ill contrived, is a maze of meaning in which we do not much like to wander, although we may be presented with the clue. But it is not enough that an Allegory be clear and expressive. It should be constructed also to dignify, enforce, and adorn whatever it is employed to display. In Art it must be picturesque as well as appropriate; graceful as well as just. (*Ibid.* p. 361.) The Allegorical Painter, therefore, will do well not to attempt flights in any track through which some popular Sculptor or Poet of well-established fame has not soared before him. Reynolds's "Tragic Muse" in the person of Mrs Siddons, (of which picture there is a fine duplicate in the Dulwich Gallery,) as well as his "Garrick between Tragedy and Comedy," are exceptions. We may here add, that there is likewise in the Dulwich Collection another allegorical subject by Sir Joshua; namely, the "Mother and sick child," which we consider a failure. The idea seems suggested by the celebrated work of his contemporary, Roubiliac, in Westminster Abbey—the monument to Lady Nightingale. In Sir Joshua's adaptation of the idea, not only is the action of the guardian angel warding off the stroke of death vulgar, and bordering on the ludicrous; but the introduction of such machinery by superhuman agents into an affair of every-day life, destroys all their intended awfulness and grandeur. The mother and her child are, in expression and colour, touchingly beautiful. On the subject of this style of Art see Fuseli's fourth Lecture.

* It is matter of serious consideration with the artist of the present day how much more limited are his opportunities of interesting the public mind than were those of the gone-by giants of old. Architecture, not only in the temples of Greece, but in the churches and convents and palaces of Italy, was the foster-sister of Sculpture and Painting. Religion was their nursing mother. "To devotion," says Addison, (*Spectator*, No. 414,) "we are indebted for the noblest buildings in the world." He might have added, that the Arts of Poetry, Oratory, Sculpture, Music, and Painting, have likewise been indebted to the same all-inspiring influence. "It seems," says Professor Iley, (*Norrissian Lectures*, book iii. c. xv. § 10. 8vo. Cambridge, 1797,) "to be undeniably true that the Fine Arts are, generally speaking, infinitely more efficacious when exercised on religious subjects than on any others. The Paintings which have the greatest effect are on religious subjects." It must, however, be confessed that the absence both of enthusiasm and of superstition, which Christian civilization and the progress of rational piety must occasion, is not favourable to pictorial invention on religious subjects. If the robe of Popery has been termed affectedly gorgeous and theatrical, the mantle of Protestantism may be sometimes pronounced unnecessarily plain and in bad taste. A severe remark has been applied, and perhaps not unjustly, to several houses of prayer constructed in our own times, that they tend to remind us oftener of the preacher than of the Deity; oftener of the convenience of the lecture-room than of the immensity of the temple that "fills all space." The world perhaps is wiser, and casts away the toys of its youth. It appears, however, exceedingly probable that the more idolatrous, the more fabulous, the more legendary, were the popular religions of old, the more effectual would be their appeals to the imagination by means of Painting and Sculpture. The celebrity which those sculptured or painted works have now, is of a different kind from their original celebrity. *We* connect with an old picture the times and history of the Painter, and estimate it at a sort of antiquarian value. We amuse ourselves, not so much perhaps with its appropriateness to our own feelings, principles, and views of Nature, as with the effect which we fancy it must have had upon its first beholders. No new work of Art can expect this kind of celebrity. The living artist is limited to contemporary fame.

* By means of a series of pictures, all of them introducing the same hero in different circumstances, a *succession* of events may be said to be narrated by the Painter. Also, in a single picture, accessory particulars or episodes may be introduced, which lead the spectator either to foresee something that must follow the principal event; or to understand something that must have preceded it. It is remarked of Raffaelle, that the action of almost all his figures enables a spectator to conceive what they must have been doing the moment before, as well as what they are about to do. In his Cartoon of Ananias and Sapphira, the episode which introduces the latter in the back-ground counting the fatal purchase-money, is a kind of continuation to the story. According to the letter of the sacred history she did not come into St. Peter's presence until "about the space of three hours after" the death of her husband. But this is a very pardonable anachronism in such a Painting.

"Raffaelle," Sir J. Reynolds observes, (vol. i. p. 85.) "in representing the Apostles, has always given them as much dignity as the human figure is capable of receiving. No where is it shown that they had really such appearance. Of St. Paul in particular we are told by himself that his bodily presence was mean. Alexander the Great was low of stature; a Painter ought not so to represent him. This is taking an allowed license. A Painter of portraits retains the individual likeness; a Painter of history shows the man by showing his actions. A Painter must compensate the natural deficiencies of his Art. He has but one sentence to utter, but one moment to exhibit. He cannot, like the Poet or Historian, expatiate and impress the mind with great veneration for the character of the hero or saint he represents, though he (the narrator) lets us know at the same time that the saint was deformed, or the hero lame. The Painter cannot make his hero talk like a great man; he must make him look like one. Poetry speaks by raising our curiosity, engaging the mind by degrees to take an interest in the event, keeping that event suspended, and surprising us at last with an unexpected catastrophe. What is done by Painting must be done at one blow." p. 247.

† It is not enough for the artist to understand his own work himself. Out of his charming language of visible signs, he must use such as we spectators likewise understand. At our first glance he must, if possible, contrive to interest our feelings even without our being acquainted with the historical or fabulous incident which he commemorates. It must be some incident during which, in real life, though we were strangers to the parties concerned in it, we should desire to be ourselves actors, and should not be able to look on unconcerned. Suppose, for example, in the foreground the figure of a wounded wretch, stripped of his raiment, pale and emaciated through pain and loss of blood; and gazing with a look of despair upon a traveller in the distance, whom he seems to implore, with almost a last effort, for succour, but who is pursuing his way heedless of the sufferer. Suppose again, on the opposite side of the picture two travellers, unperceived by the wounded man, one of them looking without the smallest sympathy upon his distress, but passing hastily on, as if to escape his observation. Then imagine the other, the third traveller, who has just alighted from his horse, or from his camel, to be running up, with a countenance and gesture that bespeak unhesitating benevolence, to the assistance of the helpless person. Let an attendant who holds his beast cast a look of contempt upon the unfeeling passenger, and point at the same time to the afflicted object. We have here a scene perhaps sufficiently intelligible, and in which we should ourselves desire to be actors.

But besides intelligibility, there is required for every good composition some purpose or moral, some rational answer to the question, *why was this picture painted?* In the illustration just attempted, the moral purpose would be to inculcate humanity and compassion. This might be its effect perhaps upon the sympathies of a person who had never read the parable of the Good Samaritan. But upon the mind of a practical Christian moralist such a composition, well sustained throughout, would be apt to have complete effect. The eye also of the educated spectator might be gratified by remarking the natural, the unaffected, the dignified, the

Painting.

(278.) Respecting the moral purposes of the Art, we take pride in the observation that our English School has never pandered to the vices of profligate patronage. "The depraved eye of sensuality," observes Sir Martin Shee, in a Work to which we have made frequent reference, "must, for such panders, look to the profligate imbecility of other nations." Those golden words therefore, of his great predecessor, Reynolds, have not fallen to the ground. "The good and virtuous man alone can acquire a true and just relish even of Works of Art. The same habit of mind which is acquired by search after truth in the more serious duties of life, is only transferred to the pursuit of lighter attainments. The same desire to find something steady, substantial, and durable, on which the mind can lean as it were, and rest with safety, actuates us in both cases. The subject only is changed."

ii. Objects for representation in Painting.

(279.) ii. The next branch of the subject of composition, according to our division of it, refers to the *choice of objects to be represented*, and requires the student to select those phenomena of Nature which will be most effectual for the purposes of his Art.* We have already, under "outline," given some elementary acquaintance with the forms of objects. A selection from those forms for the purpose either of Painting *history*, *portrait*, or *landscape*, is to be made by the composer. Of Composition.

For *historical* subjects a constant study of the antique, and familiar acquaintance with the best engravings after the great masters of the Roman School, will have prepared the student, when he comes to view his model in Nature, for rejecting all that is unessential* as well

graceful, or (as far as truth and strong emotions would permit,) not ungraceful expression given to the prominent characters in the scene; as well as by discovering a faithful representation of appearances peculiar to the oriental or Syrian clime, whether depicted in the features, costume, and bearing of the several figures, or in the wild scenery and sultry atmosphere of a route infested by robbers between Jerusalem and Jericho. Lastly, another class of admirers might be those whose acquaintance with the Art would enable them to appreciate the picturesque or artistic arrangement of forms, lights, shadows, and colouring. The achievement of a victory over some great technical difficulty has with some such beholders too often compensated for absolute insipidity and want of meaning; or, what is infinitely more abominable, for grossness and impurity.

* The extraordinary Work of Leonardo da Vinci on Painting, which we have so often had occasion to mention, contains on the subject of selection from Nature more written information than has been added by any single artist since his time. His Treatise, though apparently unfinished, and put together without method in the form of notes or memoranda, may be termed a guide to Nature not only as to form but chiaroscuro; and has actually guided the most eminent who have succeeded him. It is truly observed, in an excellent artistlike publication (4to. 1827) from the pen and graver of Mr. John Burnet, under the modest title of *Practical Hints on Composition, Light and Shade, and Colouring*, that "he (Da Vinci) may be said to have laid a foundation for principles that are to be traced through the works of the best colourists to the present day."

Sir Joshua Reynolds, in his Notes to Du Fresnoy's *Art of Painting*, declares, that all the rules which the theory of Du Fresnoy or any other teaches, can be no more than teaching the Art of seeing Nature. In another place he remarks, that to see "at sight," is not a gift in every one's possession. "The life of a student," says the author before quoted, "who has not accustomed himself to a proper mode of arranging his observations, will be spent in an endless search of what is continually passing before his eyes." Burnet's *Practical Hints*, part ii. p. 43. Milizia, the ingenious author of *l'Arte di Vedere*, under the term *Composizione* in his *Dizionario delle Belle Arti*, thus expresses a similar opinion. *Il dono piu raro nella composizione è la scelta* (selection) *La Natura si presenta a tutti: è quasi la stessa a tutti gli occhi. Ma vedere è poco, discernere è tutto. L'artista egregio sa sceglier meglio ciò che gli conviene.*

There are two distinct methods of selection which seem to characterise two of the greatest masters of composition. One is that of taking the form and proportions from Nature so as to obtain accurate individual likeness, and afterwards of using such gestures, and such modifications of expression and muscular action as the taste and judgment of the artist may be competent to supply; omitting at the same time every circumstance irrelevant, or not necessarily concerned in the subject of the work. This appears to have been the practice of Raffaelle, of whom it was a maxim to paint men not so much as they are, but *as they ought to be*. His practice was *con meno ottinere il più*. The other method is that of taking the entire *expression* from some model in Nature, (not, of course, a sitter for the portrait, nor conscious that the Painter is "taking notes,") by careful and profound examination of the habits and emotions of the individual so represented. According to this latter method, many of the gestures may be ungraceful and sometimes may not be absolutely necessary to the action required; but that the expression is true to Nature cannot be disputed, nor is it possible, if grandeur and symmetry of form be superadded, (and its application be appropriate to the subject,) to avoid admiration of its originality. This appears to have been the practice of M. Angelo. Our own great moral Painter, Hogarth, did this; but without the *grand* superaddition which indeed his style did not admit of. For a comparison of Raffaelle with M. Angelo, see Reynolds, *Works*, vol. i. p. 128; Opie, *Lectures*, p. 41—52; and Fuseli *passim*.

The efficiency of the latter of the above methods we could illustrate by one or two familiar cases within our knowledge. A dead subject lay upon a table as a model for some academic students. The question was how to dispose it in the best manner for drawing from it as the study of a lifeless figure. Many attempts were made unsuccessfully. At length one of the number proposed the ingenious plan of letting it fall from the table. This was done; it was suffered to fall on the ground, where from the various action of the law of gravitation on all its parts it immediately assumed a striking and a natural attitude. (Art. 264.) Another case happened to a very able English artist now living. He was employed, while at Rome pursuing in earlier life his professional studies, to paint a picture from the horses as they prepared to start on the Corso. He accordingly took his station on the morning of the race at the most convenient point of view which his patron had taken care to provide him; and during the interval of some minutes previous to the start he had time to sketch the horses together with the men holding them. In front of them was the cord across the street to restrain the animals until the signal should be given. He had just finished a preliminary sketch when the signal was made, the cord removed, the race begun: and he had opportunity for a few seconds to watch the action of the animals at the moment of being loose from the control of the men who held them. Here was the spirit and fire of natural action. He watched and sketched rapidly, while the first impression was yet fresh in his immediate thoughts, the play of the limbs, head, neck, chest, &c. Afterwards in his studio sitting down to compose the picture, he found his second sketch far exceed his first; and he selected from it, consequently, the best part of his composition. His employer, a gentleman of taste and discernment, though well satisfied with the finished work, requested to see the drawing in question; and preferred it to the finished picture. The relater of this anecdote, in the enthusiasm of his pictorial reminiscences of Italy, always winds up with an axiom, that "the less man has to do with the placing of God's creatures the better. While the horses remained under the control of art and of human management they exhibited no striking expression; but the moment they got loose their natural character appeared."

* It is remarked of Raffaelle, (confessedly the greatest master of expression yet known,) that he always has contrived to render himself intelligible by means few and simple, in preference to such a method as would exercise the ingenuity of his spectator to discover his meaning. It is in this respect that we think he differs most from his stupendous rival, and we may add instructor, M. Angelo; whose compositions are of that high, philosophical, Pindaric, Dantesque description which addresses and captivates chiefly the profound thinker, the learned, the original observer. If a professorial chair was established in 1373, at Florence, for the express purpose of explaining the *Commedia* only fifty-two years after the death of Dante; we need not wonder that now, in the XIXth century, two hundred and sixty-seven years after the death of the Painter of one of the noblest yet most mysterious flights of imagination that ever was conceived, namely, the "History of Man from his Creation to the Final Judgment," on the ceiling and walls of the Capella Sistina: some previous *initiation* should be desirable for the spectator in order to his undivided enjoyment of the daring sublimity of Michael Angelo. The compositions, certainly, of Raffaelle require less the aid of comment, if indeed they require any comment. They possess a kind of Homeric simplicity calculated to endure till

as all that is irrelevant or injurious to his composition. He will preserve simplicity and *unity*. He will group his figures with a view chiefly to the story of which he is to make a pictorial version.* Faithful to this principle, he will not scruple at occasional repetition of the lines and contours whether of drapery, of limbs, or features, where the intensity of the one sentiment expressed demands uniformity of expression.† He will distinguish, however, in his repetitions between similitude and sameness. He will not tolerate insipidity. *Variety* is often as essential to a composition as unity. A contrast will be shown of waving or curved lines with others straight or less curved. (Art. 263, 264.) The motions and posture of the limbs will vary with the character of their owner.‡ Feebleness will be contrasted with strength; age with youth; childhood with manhood; feminine delicacy with manly vigour. The varieties likewise of passion and of sentiment* are

Unity, variety, and fitness in the choice of objects.

Poetry, and Painting, and Sculpture shall be no more. It is more than probable, also, that the great sculptile talents both of Raffaelle and of Angelo, but especially of the latter, contributed mainly to their astonishing facility and success in depicting any position or representation imaginable of the human figure. The Cartoons supply admirable exercises for the modellist.

* The late Mr. Northcote (whose name, we regret to say, may now be added to our short obituary (see PAINTING, p. 498) of English worthies in Art) has some very applicable remarks in his *Life of Titian*, concerning the Roman School. He observes that its amateurs and patrons among whom the ancient taste predominated sought only for the most heroical subjects: and therefore the chief endeavour of the Roman artist was to make things with the greatest possible simplicity. "It is," adds the venerable author in another passage, (vol. i. p. 387.) "the test of genius, or good sense, to prove with how few figures it is able to tell the story. And I should give it as my advice to students in the Art, always to compose their historical designs with as few figures as possible, admitting that their subject be fully explained; and also that their figures should be large in proportion to the size of their canvass. The reason is, that it will better enable them to master the greatest difficulties and display the highest refinements of the Art which are most assuredly comprised in the human figure. An experimental lesson of most useful tendency would be to tell the story even with one solitary figure, after the example of Michael Angelo, if it be within the bounds of probability, or at least with such an intention in the mind. This method would oblige the student to give the figure the most decided contour, with precision of form and drawing, energy of expression, and every characteristic mark which may be required towards its explanation. It must force him to apply to those things only for assistance which are of essential importance to his work, and will prove at the same time how necessary it is to keep clear of all imperti nent and trivial matter, such as might confuse and perplex the subject, or lead the spectator to mistake it for what was not designed, and deceive him into a wrong conclusion. An historical picture, like an enigma or riddle, should have this property, that if on viewing it the specific subject is not made determinate, at least it should not be found to answer to something else."

† M. Angelo is unrivalled for preserving unity in his figures If all the limbs, and muscles, and features, that are available in his figure are sometimes called into action, they are all, however, always directed to *one* action, always faithful to one combined movement.

‡ There are many works of the early German and Flemish masters, such as Durer, the Van Eycks, &c. which are excellent models of every variety of expression. The figures and forms throughout are evidently faithful transcripts from Nature and may be relied upon. Give them symmetry, colour, chiaroscuro, and other *adjuncts* of good Painting, and they must be found an inexhaustible treasure from which future Raffaelles may borrow without scruple and without blame. And although in expression, particularly of the countenance, there are national peculiarities which should be avoided; yet there will be seen in such works as we allude to, much of the grand general human character, and of that universal dialect, (so to express it,) the proper dialect of a Painter, common to all nations. Respecting the varieties of individual character in Historical Painting, it is recommended by Mengs in his chapter *della Composizione*, that the student should confine his acquaintance with the story of his subject only to some choice passages in a favourite Historian: but that he should obtain every circumstance, by reading or otherwise, that he can possibly collect; as well of the personages in his picture, as of his hero, in order to represent them adequately, or (to use our own term) *individualize* them. *Opere di* Mengs, vol. i. p. 280

* Notwithstanding the ridicule which some (who only write or talk of, and do not attempt the arts of design) have attached to treatises for representing the varieties of human emotion, and who have termed them "receipt books for the passions," there cannot be any doubt that such studies are anatomically, as well as in some small degree metaphysically, important to every artist that claims to be superior to a house-painter, and to be a student in the school of animated nature. The Work of Le Brun has been censured by Winckelmann as portraying with a most outrageous pencil the affections, and the lines of passion: and as being therefore likely to mislead artists, and young artists more especially, into extremes; instead of drawing their attention to those delicate gradations of expression which distinguish every work of genius. Severely just as this censure is, there is no denying, at the same time, that to this system of Le Brun many able artists have been indebted for elementary knowledge. If he was not infallible, he was at all events a very honest instructor, and exemplified in his own works his own precepts. In those works we certainly see nothing of the sublime. But he designed with perfect correctness, and understood completely all that mechanism could effect. Besides, in a popular treatise, the utmost that can be done seems to consist in marking distinctly the stronger and more vehement signs of emotion, and contrasting them with the peaceful state. Intermediate shades of expression may be left to the ripening judgment and future experience of the young observer. The Essays of Sir Charles Bell on *Anatomy of Expression*, to which we have before alluded, are replete with admirably bold and pointed examples. Camper, in the Work we have quoted, (Art. 222,) has an ingenious Lecture on the subject. "The first thing requisite," says he, "is to acquire an accurate knowledge of the form of the skeleton, and particularly of the cranium: the second to be well acquainted with the principal muscles of the face and their action: thirdly, to trace the nerves in their divisions and connections with these muscles An oppressed, sorrowful, or melancholy person, lets his head sink downwards, or he supports it with his hand. The equipoise is no longer maintained by the muscles of the neck: that is, the nerves belonging to those muscles are rendered inert. A lively, contented laugher, on the other hand, raises his head, and his breast is agitated" p. 128, 129.

Lavater, in his Treatise on Pictorial Anatomy dedicated to Fuseli, mentions the system of Bardon by which the different states of mind to be represented are divided into four classes:—the tranquil, the agreeable, the sorrowful, the violent. He thinks this division more philosophical than that of Watelet in his Poem on the subject; but regards the latter as more practical. Watelet has six principal classes. 1. Sorrow, or pain of mind. 2. Joy. 3. Pain by bodily suffering. 4. Defection, prostration, or imbecility, mental and bodily. 5. Energy, mental and bodily. 6. Privation of a good or of a pleasure. We omit the subdivisions, which the reader will not find much difficulty to supply, and proceed at once to keep our promise (Art. 232) of enumerating those muscles of the countenance which relate more especially to *expression*. For this purpose we will suppose the student to be prepared, according to our suggestion in Art 257, (note 2.) with an outline, or Painting of the fore part of the human skull. He will begin with those muscles that lie deepest, and so proceed to the external layer nearest the skin. 1. The *buccinator* (so called from its prominence in the act of blowing the *buccina*, a circular trumpet) will extend from the root of the coronoid process of the lower jaw, and thence along the alveolar processes of both jaws, as far forward as the dentes canini: to be inserted into the angle of the mouth, which it draws backwards and outwards, or contracts its cavity by pressing the cheek inwards. Its action is to assist the tongue in collocating food between the teeth for mastication: also in blowing, to form, by its dilation, a large space for containing air; in order afterwards, by its contraction, to press or force out from the lips the quantity of breath so collected. For the air in blowing is not collected in the throat, but in the reservoir of the mouth as just described. On the buccinator lies a small portion of fat, which fills up the deep space in the cheek. When this fat is reduced by sickness, the cheek takes a hollow form, and the action of the strong muscles above becomes more prominent. 2. The *temporalis* we have already mentioned. (Art. 232.) 3. The *masseter*. (*Ibid.*) 4. The *levator menti* vel labii inferioris arises from the lateral incisor of the lower jaw to be inserted into the under lip; and is called *superbus*, from its throwing up the under lip with a contemptuous expression. 5. The *depressor labii superioris alæque nasi* arises from the alveoli of the incisors of the upper jaw, and from the root of the canine tooth to be inserted into

capable of most interesting contrast. But, thirdly, besides unity and variety, *fitness* will be maintained: namely, a careful attention to the probabilities of the story. To this effect, appropriate dress, decoration, or

the upper lip, and root of the ala nasi or nostril, and draws the upper lip and the nostril downwards. 6. The *depressor labii inferioris* (from its square form called quadratus menti) arises from the side of the lower jaw, to be inserted into the edge of the under lip, which it pulls downwards. It covers the muscle No. 4. 7. The *depressor anguli oris* (called *triangularis* from its shape) arises from the base of the lower jaw, to be inserted into the angle of the mouth which it depresses. It partly covers the last-mentioned muscle. 8. The *levator anguli oris* arises on the upper jaw, between the root of the first molar tooth and the foramen infraorbitare, to be inserted into the angle of the mouth, which it draws upwards. It partly covers the buccinator. 9. The *zygomatici* (major and minor) arise from the zygomatic processes of the cheek bone, to be inserted into the angle of the mouth. They draw the corner of the mouth and upper lip obliquely upwards and outwards. They almost cover the last-mentioned muscle. 10. The *levator labii superioris proprius*. From the external orbiter process of the upper jaw immediately above the foramen infraorbitare, to be inserted into the upper lip, which it is employed exclusively in raising, as its name proprius implies. 11. *Levator labii superioris alæque nasi* arises from the superior nasal and orbiter processes of the upper jaw to be inserted into the outer part of the nostril and upper lip. It raises the upper lip and dilates the nostril. 12. *Orbicularis*, a sphincter muscle, or series of circular fibres, forming great part of the fleshy substance of the lips. It closes the mouth, and is in direct opposition to the surrounding muscles, for all the levators and depressors of the lips are opponents and antagonists to these circular fibres the growth and formation of which is supplied chiefly from the muscles inserted into the lips. 13. The *compressor naris*, arising from the outer part of the nostril and adjacent part of the upper jaw, to be inserted into the lower part of the os nasi and nasal process of the upper jaw. Its office is to close or compress the nostril by drawing it towards the septum nasi. Or in junction with the lower fibres of the frontalis, (Art. 259.) not yet described, it pulls the nostril outwards. It also corrugates the nose.

The above-named muscles relate entirely to the nose and mouth. The remaining three concern the eyelids, eyebrows, and forehead. Previous to depicting them, each of the eyeballs may be now presented in its orbit or socket. 14. The *corrugator supercilii*, a transverse slip of muscle that knits the eyebrows, has a fleshy origin from the internal angular process of the os frontis. It is to be inserted into that inferior fleshy part of the frontalis, which forms the skin under the eyebrow. It pulls down the eyebrows and skin of the forehead, and produces vertical wrinkles. 15. The *orbicularis palpebrarum* arises from the internal angular process of the os frontis, from whence its fibres spread round the orbit, and cover first the upper and then the lower eyelid, with the bony edges of orbit. "There is," observes Sir C. Bell, "a little tendon in the inner angle of the eye, which may be considered as the fixed point for this muscle, both origin and insertion. Some anatomists describe it as two semicircular muscles." It closes the eye by bringing down the upper lid and lifting the lower. It also compresses the eyeball and lachrymal gland. 16. The *occipito frontalis* has its origin from the occiput from whence it spreads in a tendinous fascia (Art. 259) over the crown of the head, forming the scalp, but again becomes muscular on the lower part of the forehead and on the brows, till its insertion into the skin under the eyebrows, and also into the internal angular process of the frontal bone in the inner angle of the eye, while another slip passes down over the nose. It pulls the skin of the head backwards, raises the eyebrows, and corrugates the skin of the forehead. "Independently of its action, the mere fleshiness of this muscle gives character. The brow of Hercules wants the elevation and form of intelligence; but there will be observed a fleshy fulness on the brow and around the eyes. This conveys an idea of dull brutal strength." *Anat. of Expression*, p. 58. For some of the more remarkable of the above named muscles, see plate ix. Having now gone over those regions of the eyes, nose, and lips, in which, as has been truly said, lies the focus of expression, we will next proceed to describe as succinctly as we are able, with the assistance of the Works we have quoted, some of the more remarkable expressions indicated by the movement of these facial muscles. In a tranquil and unruffled state of the countenance, the muscles No. 14, 15, 16, are poised, and counteract each other. When the eye is shut gently, as during sleep, only the upper eyelid moves. The eye is opened also only by an attachment from No. 15 to the margin of the upper eyelid. It is by the action, says Campet, (p. 132.) of the seventh pair of nerves that we laugh, blush, or look pale. The muscles No. 8, 9, 10, 11 raise the mouth, fill the cheek, and express cheerfulness. No. 13, however, is an antagonist to these. "In all the exhilarating emotions the eyebrows, the eyelids, the nostril, the angle of the mouth are raised. In the depressing passion all this is reversed, the brow is clouded, the nose peculiarly arched, and the angle of the mouth depressed. The parts of the human face most movable and most expressive are the inner extremity of the eyebrow and the angle of the mouth, and these are the parts which in brutes have the least expression. In these features, therefore, we expect to find the muscles of expression peculiar to man. Bell's *Anat. of Expression*. No. 14 is the most remarkable of peculiarly human muscles. It knits the eyebrows with a meaning that irresistibly conveys the idea of mind and sentiment. Rage is indicated by sciutillation of the eyes, and by the snarling muscles, No. 10, 11, exposing the canine teeth. (See *Mammalia*, plate v. for an excellent example in the Wolverine.) This expression by itself would show brutal rage, but assisted by No. 14 the appearances of human thought and emotion are superadded. Again, to indicate mere animal or bodily pain, let No. 12 half close the lips, which are at the same time inflated. But join to this the action of No. 6 and 7 (particularly of the latter, which is peculiar to man) and an effect is shown of more than mere bodily suffering. In this expression, of course, the action of No. 14 and 16 will combine. The expression of laughter is produced by the relaxation of No. 12, and consequently the preponderance of the elevating muscles No. 8, 9, 10, 11. There is a seeming resemblance between the action of muscles in laughter and in weeping, or mere bodily pain, but the character of the cheek and lips presents a striking difference. No. 12 in a smile is merely relaxed, whereas in anger and in pain it is forcibly drawn by the other muscles. In violent laughter, No. 9, and the other elevating muscles, are yet more excited, and No. 12 yet more relaxed. In contempt, pride, suspicion, jealousy, No. 12 combines with No. 4 and 7 to arch the lips and depress the angle of the mouth. The lips are drawn horizontally with a bitter expression, which just discloses the teeth. In grief, No. 7 and 14 (the former by depressing the angle of the mouth, the latter by the upper inversion of the eyebrow) combine to show a dejected and subdued state of the mind. In short, the angle of the mouth and the inner extremity of the eyebrow (features most indicative of human expression) are the most movable parts of the face, and at these points the facial muscles may be said to be concentrated. In languor, faintness, or sorrow, the muscle No. 7 is often accompanied by the action of No. 14, and the latter combined yet further with the action of the central fibres of No. 16. In this expression the depression must be slight, not violent, for No. 7 cannot act strongly without the combination of the superbus No. 4, which would completely spoil and change the expression. In the languor of sickness, when suffering is not extreme, the nostrils are depressed. But an occasional pang dilates them, (by means of No. 11,) causes gnashing of the teeth, (by No. 2 and 3,) widens the lips, (by No. 6, 10, 11,) raises the eyebrow, (by No. 16,) fires the eye, and gives a swelled flush to the whole countenance. In fear, the expression of the human subject is, as of other animals, without dignity. The eyeball is much exposed, the eyebrows elevated to the utmost, the breathing irregular, and, as it were, by gasps, or suspended, the nostril inflated: to which symptoms add the convulsive opening of the mouth, exhibiting partially the teeth and the tongue together with the dropping of the jaw and hollowness of the cheek. For an attempt, on a very small scale, to exemplify some varieties of expression, see plate ix. The eighth pair of nerves, observes Camper, or the lesser pathetics affect the system in emotions of surprise, of love, and in the approach of dissolution. In dying, he continues, the eyes are drawn towards each other, because the power of the will ceases, and the muscles only act in consequence of the feeble remains of life yet seated in them. The eighth pair, or greater pathetic, communicates with the throat, breast, abdomen, and by the intercostal muscle, with the nerves of the arms and legs. P. 132.

It might not be difficult to pursue at greater length an abridged view of the effects of emotion and of nervous excitement upon the neck, the trunk, and the limbs. But we must here conclude this branch of study, that we may have space for pointing to others equally indispensable to the student, remarking only on the importance of his giving peculiar attention in his figures to the action of their hands. It has been observed of the celebrated "Cenacolo" by Leoni da Vinci, of which an excellent copy is preserved in the Royal Academy, that were the heads in that Painting entirely hidden,

Painting.

equipage, and observance of costume in general will contribute. The manners and exterior of each figure will represent clearly, though unobtrusively, the age, rank, sex, condition, and character of the individual. It must, however, be all along borne in mind, that the outlines of a composition must have reference also to the effects that are producible in the arrangement of chiaroscuro and colour hereafter mentioned.

The arrangement to be suited for the best aids of colour and of chiaroscuro.

(280.) But more especially in Portrait Painting, the necessity of accommodating the outlines, or beginning of a composition to the ultimate effects of chiaroscuro and colour is obvious. Such an outline from Nature is to be chosen as will contribute to represent the "best looks" of the person painted. The rules of unity, variety, and fitness are also as essential to this kind of composition as to any other. The first of these qualities requires that the general character of the person should be preserved.* The second demands such force of contrast as, without interfering with simplicity or unity, will promote individual likeness, and at the same time gratify the eye. The third quality of a portrait, or its fitness, presupposes in the artist a degree of address seldom attainable; which must enable him to hold unlimited control over the taste of his sitter in what relates to dress and to costume generally.

(281.) It is chiefly, however, in landscape, and in Paintings of what is termed "still life," that the grouping of outlined objects must be made a preparation for the effects of light, shadow, and colour. Objects in Nature that interfere with, or combine awkwardly with the parts of this subsequent process, must not be selected for landscape, or must be excluded. In historical forms or in portraits a particular sentiment, or set of features, may require a particular outline, and to that outline must the future choice of colour or of effects of shadow be made in some degree subservient in order to a good likeness or a forcible expression of the sentiment intended. But it is in landscape, or the representation of inanimate objects, that the aerial perspective, the chiaroscuro, or the disposition of local and reflected lights, colours, and shadows, must be all in all. And although, in such pictures, there is a certain degree of unity, variety, and fitness* to be observed in the forms which such a composition *puts together*, yet the chief interest of such objects for Painting must arise from good choice and arrangement of colour.

Of Composition.

(282.) Composition of light and shade comes next to be considered. An acquaintance with the perspective of shadows† is essentially necessary to the student, as well as with the appearance of light either *reflected*‡ from the surfaces of objects according to their degrees of polish,§ or refracted through them, according to their degrees of transparency, and their fitness for transmitting colours and forms seen through them.‖ (See Optics, p. 410. 417. 422; Light, Art. 4, 5, 36, 88—108. 151, 171, *et seq.*) The earliest attempts at representing light and shade among the ancients appear to have been given in what is called monochrom painting, *viz.* by

Appearances of Nature to be studied and selected as to light and shade.

---

and the hands only of the figures exposed to view, the spectator might discover the story, and sympathize with the actors in that pathetic scene of affectionate energy, surprise, dismay, and reverential sorrow.

That the limbs and whole person must cooperate with facial expression the commonest observer will allow. We are inclined to an opinion, that sometimes variety of expression may even be given to a head only by varying the position of the neck which supports it. The head, for example, in plate xi. fig. 2 (if the dotted lines Θ Θ be taken for the boundaries of the neck,) is represented looking up, and seems to wear an attitude of entreaty. If these dotted lines be removed or concealed, and Δ Δ be taken to represent the neck, the eyes appear looking no longer upward, but forward, as if during conversation with an equal. Thirdly, if Π Π be made the boundary lines of the neck, the face directs a downward look towards some supposed object below with an air of protection to an inferior. In this example, therefore, without changing the position of any one feature of a face, the reader will perhaps agree with us that the changes only in the adjoining parts contribute to give three different peculiarities of expression to the same unaltered countenance. For fine expression of hands see in the National Gallery the picture by Da Vinci of "Christ among the Doctors." Also, by Giorgione "The Martyrdom of St. Peter." And in the Dulwich Gallery the "Adoration of the Shepherds" by An. Carracci; together with several fine works of N. Poussin, particularly the "Triumph of David;" Guercino's picture of the "Woman taken in Adultery," and a picture said to be by Rubens, of "Samson and Delilah."

* Sir Joshua Reynolds remarks of the Dutch School of Painters that they have still more *locality* than the Venetian. "With them (the Dutch) a history piece is properly a portrait of themselves; whether they describe the inside or the outside of their houses, we have their own people engaged in their own peculiar occupations; working or drinking, playing or fighting. The circumstances that enter into a picture of this kind, are so far from giving a *general* view of human life, that they exhibit all the minute particularities of a nation differing in several respects from the rest of mankind."

* Fitness of costume in composing a landscape may be said to be its adherence to one particular class or style, as well as its freedom from local incongruities. It would be absurd, for example, to confound in the same landscape the Arcadian style of Claude or of Titian, or the classic solemnity of Gaspar Poussin, or the wildness (often overwrought and studied) of Salvator Rosa, with the more detailed and more homely, but no less able and beautiful works of the elder and younger Teniers, of Ruysdael, Hobbima, and the Dutch and Flemish Schools of Landscape. Again, with respect to local incongruities it would be equally absurd to place aquatic plants in a waterless desert, or to plant trees from the Torrid Zone in a composition extracted from Windsor Forest.

† See Note (A) at the end of Painting.

‡ See Note (B.) *Ibid.*

§ Da Vinci (cap. 131 and 132.) observes respecting the local colour of bodies, that those which have rough and uneven surfaces discover most their natural or general hue. The colour of polished surfaces, on the contrary, is with difficulty discernible. These last are tinted by the colour of the light reflected from them, (whether primitive or borrowed,) by the glow for example of a morning or evening sun, by the blue of the sky, &c, and he instances in the smooth and shining leaves of trees and herbage, when seen from a particular point of view. Further examples may be added from interiors in the yellow and red light of a lamp or of fire, &c. reflected from the shining surface of any coloured object.

‖ Examples of every day occurrence are before the eyes of the student. The interposition of air gives to distant objects that blue cast which, in Southern climates, where vapours are more rapidly exhaled than in ours, is of intense clearness and brightness. In all climates, however, the lower portions of the atmosphere are, in some degree, vapoury, and therefore less transparent. But the upper portions being less dense transmit rays with proportionate distinctness: so that objects generally exhibit more or less of their local colour and of the effects of light on their surfaces according to their degree of elevation. (See further on this subject Da Vinci, cap. 68, 69. 128. 134. 136.) Not only the air which veils or envelopes every object, is itself a medium more or less transparent, but almost every object which it envelopes is more or less adapted for transmission of light. Let almost any piece of coloured drapery be held up between the spectator and the sun: the apparent colour of the cloth will be affected by the transmission of the rays. Light also penetrating the edges or issuing through the crevices of wood, or even of stone, (especially of marble,) exemplifies this property in bodies still more distinctly. Every leaf of a tree, every petal of a flower exhibits, according to its position with respect to any light which illumines it, similar translucent properties. With respect to animate objects: not to mention the wings and bodies of innumerable insects, the feathers of birds, or the hair of other animals, let the observer only hold up the palm or back of his hand against a strong light, with his fingers extended and placed laterally close to each other, he will discern between them a peculiar warm flesh tint caused by the passage of rays through the transparent skin. An attentive examination of these and similar effects in all their varied gradations is important to good colouring.

Painting.

gradations of white and of some one dark pigment, such as brown or black.* No further effect seems to have been desired than would result from pieces of sculpture seen from one point of view. The same course may be said to have been pursued by all subsequent artists, as being introductory to the representation of variously coloured objects. The effects of moon light, indeed, often afford, in nature, admirable subjects for nearly monochromatic pictures. This portion, accordingly, of the study of chiaroscuro, has been, in general, separated from that of colour, in order, it should seem, to simplify the theory on which depends mainly, and often entirely, the success of a composition. That the darkest shadows are almost, if not altogether, without colour, is obvious to the experience of every eye; but to look at Nature without uniting colour to the brighter parts of objects, or rather to those parts which are in half-light, and in which colour is most conspicuous, requires careful discernment. The successful labours, however, in innumerable instances, both of the graver and of the portcrayon, prove this practice to be sufficiently attainable.†

(283.) Light and shadow may be considered in four ways: either

1. As giving relief, or bringing forward to view the prominent parts of an object. Thus, the features of a countenance, the fingers of a hand, the folds of a garment, the leaves and twigs of a bough, &c. are so many details of which the outlines alone would present the figure or object to which they belong under the appearance of a flat surface, but which filled up, as in Nature, with alternate lights and shadows, according to the relative position of some illuminating body, strike the eye, and through the eye the imagination, with an impression of their solidity.‡

Of Composition.

2. As giving relief to some complete, some detached, some isolated object, by raising its contour, or outward boundary, off the ground, composed of other objects which appear from behind or beyond it. In this way, the figure of a horse, a man, or a tree, is relieved by the sky seen on the other side of it, or by a mountain, or building, or by distant masses and groups. Or one building is relieved by another building, one tree by another tree, &c.*

---

* Fuseli quotes as follows in his introductory Lecture, p. 8. from the conjectures of Riem on the Painting of the Ancients, 4to. Berlin, 1787. Their *monochroms*, he says, or "Paintings of one colour on a plane or tablet," were "primed with white and then covered with what they called punic wax, first amalgamated with a tough resinous pigment, generally of a red, sometimes dark brown or black colour. In or rather through this inky ground the outlines were traced. From this step "they advanced at last to masses of light and shade, and from those to the superinduction of different colours." See also our present Treatise at p. 467.

† A white or a black object being of the same local hue with the colouring material of the monochrom must be peculiarly and often most inopportunely conspicuous. Two things are to be done in monochromatic works. 1. To represent the proportion of light and shade in any part of an object supposed uniform in its local colour. 2. To represent among a number of objects, each of which has a different local colour, the exact value in Nature which each local colour bears as to light and shade, when compared with the rest.

It is well known that living specimens exist of individuals whose eyesight cannot distinguish colours, and who see all objects in this monochromatic light. Such a faculty (if we ought not rather to say deprivation) might be serviceable for determining what pictures would have the best effect in an engraved form. For it not unfrequently happens that a well-coloured composition before being submitted to the graver undergoes considerable changes under the direction of the artist who composed it in order to pictorial effect under its new monochromatic garb.

The following communication of an experiment by M. Homberg, made at Paris, in 1699, to the French Academy of Sciences, may give some idea of the comparative value of light conveyed from coloured objects. *Il prit un verre bien brut de deux côtés et par conséquent peu transparent, et l'ayant placé dans une ouverture par où passoit toute la lumière qu'il recevoit, il ne voyoit au travers de ce verre que les objets blancs qui étoient au delà et nullement ceux de toute autre couleur. Ayant un peu poli le verre, il vit mieux le blanc et commença à voir le jaune: et à mesure qu'il le polissoit davantage, les différentes couleurs commençoient à se découvrir dans cet ordre—jaune, vert, rouge, bleu, noir. V. Histoire de l'Acad. Roy. des Sciences de Paris. Année*, 1699. *Physique Générale*, p. 18, 19.

‡ Respecting any natural object selected for pictorial imitation, the artist must beware of confining his representation of it (through a misplaced ambition of originality) to the impressions of his own mind alone. He will find, that for obtaining faithfully the characteristic lines, lights, and shadows of any object, he must be on the watch for and set down not what is most recondite, but what is most obvious: not the peculiarities which he may chance to pride himself for discovering, but the peculiarities which nobody can avoid seeing. In short, he will select whatever is predominant; whatever cannot fail to reach the eye of the commonest observer. Those very characteristics, which from their commonness may in Nature be little valued, become, when transferred to works of Art, invaluable. It is remarked of Rembrandt that he gave to every object the peculiar character familiar to every spectator. The student will likewise be careful to see his object or model in such lights as will exhibit best its predominant features. There is always in Nature, observes Da Vinci, some light in which an object is better recognised than in any other: some light in which an animal figure, for example, exhibits best the particular muscles required to be in action. He instances the difficulty of recognising even the face of a familiar acquaintance, if instead of being illumined in the way we usually see it, it be made to receive light only from below. He desires always such a point of view to be chosen as will show both the shadowed and the enlightened side of any figure: and recommends a high light, uniformly diffused, and not excessive nor glaring, as most advantageous for showing features and minute parts. We need only add, that similar remarks hold true of inanimate substances: and that in the case of buildings, for example, some point of view should be chosen opposite their main angles or corners, in order to have the advantage of light contrasted with shadow. (Da Vinci, cap. 40, 41. 279.)

* The shaded side of the object which casts the shadow is commonly less dark than the shadow which it casts. Thus the shadow of the wall T P K O *z* R (plate xii. fig. 4) will be darker than the wall itself. The causes of this are various. One is, that there is commonly some reflected light from a neighbouring object; as in the present instance, from the enlightened part *w* H *d j k*, &c., a reflex is thrown upon T P K O *z*, &c.: another is, that reflexes from bright clouds, or a bright sky opposite the sun would likewise be thrown upon it: and another is, that supposing no wall or interposing object whatever at H, there would yet be a reflex from the illuminated part of the ground.

A difference important to the student may here be remarked between the lights and reflexes of an out-door scene and of an interior. "The principal mass of light in out of door scenes (both in Nature and the best masters) is generally placed in the sky, or upper part of the picture;—in interiors it is generally reversed, the roof and back-ground being reserved for a mass of shadow and repose." (Burnet, *On Composition*, p. 12.) The admirable interiors of Ostade exemplify this latter effect in almost every variety that ingenuity could devise: an effect which the observer of Nature will explain by considering that the great vaulted roof or dome of the sky becomes, by day-light, a source of general illumination which descends more or less on all objects below it: but that the ceiling of a chamber often receives only such reflexes as arise from the floor or side walls, which, being more in the way and more opposed to the *descent* of ordinary light through the door or windows, must receive more of the direct rays. Hence, whatever be the colour of our walls, or furniture, or carpeting, our ceilings are almost always white, in order, it should seem, that no reflected light may be absorbed or lost to us, but that as much may be drawn as possible from above us (See note (C.) Obs. 53. at the end of PAINTING.)

On the subject, therefore, of *detaching* objects from their ground, the observation of Da Vinci is applicable in this place. Figures, he says, exhibit a much greater relievo, when illumined by a particular than by a universal light. For a particular light will cause reflexes which loosen and *detach* the figures from their ground. These reflexes are imparted from some of the group from whom the light rebounds upon the shadowed sides opposite them of the other figures; and faintly illume those sides, so that such shadows, however forcible and effectual, will have no hardness nor harshness, but

Painting.

3. As being influenced by the various transparent media through which light passes, and more particularly by the air, either in proportion to the density of the latter, or in proportion to the quantity of atmosphere interposed and giving dimness more or less to the greater number of objects seen at one view, (and, consequently, represented covering the greater part of any picture,) according to their distance from the spectator. Thus, groups of trees, or cattle, or other figures, or of rocks, or cottages, will be observed in Nature to have their lights and shadows more faintly expressed than other groups or masses which are viewed through clearer and purer air,* or through a smaller body of air, by reason of greater nearness to the eye. (Art. 262.)

The first and second of the above considerations will be found chiefly to concern the separate parts of a composition, while the third applies especially to the general effect of it as a whole, and to the proper keeping of each part,† as conducive to that general result.

Of Composition.

4. A fourth consideration is, that light and shadow are also influenced by the local colour of the illuminated object. The lights of black drapery, for example, will be far darker than the shadow of yellow cloth, or of white linen. And there will be perceived in every colour, according to its intensity, or its place in the prismatic scale, a greater or less capacity for reflecting light. (Optics, Art. 66, 67, 68. Light, Art. 1139. 1141.) This latter observation will be of further use when we come to the means, modes, and rules of pictorial representation. For the present we remark that the three last of the above divisions comprise the principles of chiaroscuro.

(284.) Colour, pictorially considered,* as it appears

---

will fall off and lose themselves by an insensible gradation. He elsewhere adds, that this light partakes of the colour of the body reflecting it, and will be greater in proportion to the nearness of the reflecting surface. (Da Vinci, cap. 55. 124. 127. and Note (C.) Obs. 49, 50, 51 at the end.)

* The practice is not uncommon of confounding the general term chiaroscuro with the ordinary acceptation of the terms light and shade. In light and shade, commonly so called, consists the mere art of shading correctly any object by itself. Chiaroscuro includes much more. To chiaroscuro belongs the general arrangement and effect of lights and shades, tints and demitints, throughout a picture. *Il chiaroscuro*, says Milizia, *non è soltanto in ciascun oggetto, ma è il risultato di tutti i lumi, di tutte le ombre, e di tutti i reflessi d'un quadro. Artisti*, he exclaims, *dilettanti, amatori, spettatori, studiate Correggio, miratelo, rimiratelo, godetelo, e suprete che cosa è chiaroscuro. Saprete che il chiaroscuro è la base dell' armonia, e i colori non sono che i toni che servono per caratterizare la natura de' corpi. Dizionario delle Belle Arti*, p. 187.

A painter, then, besides observing and seizing the best light for exhibiting the individual parts of any object, must also contemplate it in conjunction with all the other objects which surround it. There is continually to be found upon the great theatre of Nature, a favoured spot where some one of her innumerable *dramatis personæ* stands out most conspicuously and effectively beyond the rest. The *stage-effect* (if we may presume so to call it) which is thus naturally produced, must be carefully analyzed and studied. It will be found to consist in the diversified application of some of the plainest and simplest truths imaginable. Dark objects, for instance, appear most prominently upon a light ground, and light objects upon a dark ground. The latter, too, though of the same size with the former, appear larger; that is to say, a black square relieved by white seems smaller than a white square of the same area relieved by black. Or, again, as a dark surface receives breadth (Art. 294) by surrounding a darker one, and *vice versâ*, so does a bright surface by the intervention of a brighter, which forms, as it were, its focus. As the first mentioned of these instances gives contrast and *variety*, so the last conduces to *unity* or general effect.

† *Keeping* means such a correct disposition of the lights, shades, and colours of an object as leaves the mind of the spectator in no doubt as to its intended place in the picture. In Nature every object in this respect is perfect. Nature all the while continually varying in the direction, colour, and intensity of lights and shadows, presents no object that does not *keep* its due position, its proper value and prominency in the scale of aerial perspective. One of the most indispensable employments of the artist is to study the effects of atmosphere throughout all the various changes which diversify the appearances of objects. "The atmosphere," observes Mr. Craig in a Lecture to the Royal Institution, "is transparent in a greater or less degree, according to the quantity of vapour with which it is charged, or the position in which we stand with regard to the light. We find that glass, and even crystal or diamonds, may be so doubled and redoubled as not to allow the possibility of distinguishing objects through those media; because the particles which compose them, though pervious to light in a very great degree, are also susceptible of a certain portion of shadow. It is even so with the atmosphere, the thinnest and most transparent of all media. When the air is highly illuminated by the sun, and we stand with our backs to the light, distant objects of any kind are scarcely discernible, because we see the enlightened sides of the particles composing the medium. If then the particles of air can obstruct and reflect light, they must also be liable to have their shadows; combining these particles, therefore, of lights and shadows, or of black and white, the colour of atmosphere will be grey, varying a little as the one or the other predominates. The effect of this medium, consequently, is, to make lighter every thing that is darker than its colour, and to darken every thing that is lighter, till, each approaching the other, the objects become so many flat screens, and at last, from a continuance of the same cause, totally disappear. The principle, acted on by some artists, that the interposition of air makes all objects lighter, (and that, therefore, the brightest part of the sky must be always brighter than any object in a picture,) would be true if all the objects in all the distances of a landscape were actually in shadow; because they are then darker than the colour of the atmosphere, and must be made successively brighter by its interference. But to show," continues the author, "that this is not always the case, I beg the favour of you, in the first opportunity of a bright day to take a piece of paper or any white object, and, standing full in the light, bring the paper in apparent contact with the whitest cloud you can find in the sky. You will perceive that the paper is many distinct degrees whiter than the cloud."

* The "high aspiring" Painter, who would enter the lists with Nature, must take his weapons from the same armoury. He must employ all his faculties of vision, whether physical or intellectual, in observing how objects receive increased effect from their being viewed in some particular position, in some particular light, or in some particular combination with other objects. After all his pains, however, he will find himself necessarily deficient in the art of representing perfect relievo on any plane surface. "The practice of Painting," as has been well remarked, "can never be carried higher than to represent truly the highest possible degree of created Beauty, always in Form, sometimes, nay frequently, in Colour; but never in the full vigour of light and shadow." Craig's *Lectures*, p. 107. But we may here also notice how painfully every artist, in his imitations of Nature, must be sensible that he often differs from his brethren, and often from himself, in possessing at different times very different degrees, not of intellectual vision only, but of the faculty of sight which he is called upon to exercise in this profession. He will find his eye not always faithful and uniform in its decisions, and more particularly with regard to the subject of colour. An ear for music has been always thought essential to the musician: though all musicians confessedly have not the same acuteness in that organ. But a bad ear may be often improved; not so often a deficient eyesight. Whether it be that the musician by possessing a written language for his instrument, and a gamut in which the intervals of sound are arbitrarily measured and defined, and brought under mechanical dominion, can thus call up to his ear at any time, any given interval of tone; whereas the Painter to decide his interval of colour has no such artificial help, but trusts to his eye only for measuring his gradations of tint, tone, and hue in natural objects: certain it is, that differences among musical artists are far less remarkable than among the pictorial, not only as to modes of practice, but even as to elementary principles of composition in their respective Arts. Besides the great varieties of talent shared by different individuals in the same branch, there are shades of eminence for one and the same artist in different branches. Some musicians have an excellent ear for *time*, but are less perfect in respect to *tune*. Analogous to this is the distinction among Painters, between an eye for *form*, or great facility and taste in drawing; and an eye for *colour*, which is often

Painting.

Appearances of Nature as to colour.

in natural objects, conduces much to the same purposes as light and shade. It enables the eye to recognise objects and gives them prominency. By the student in Art, colour may be most conveniently regarded either

1. As a property of light issuing from self-luminous bodies.* Thus the rays of the Sun are seen, at different periods of the day, to spread a different tone of colour over any prospect: so also the red light of a fire, or the yellow light of a candle will give to any scene in a chamber a peculiar warmth of tone.†

Of Composition.

2. As belonging also, under the denomination of local colour, to other substances opaque or transparent, or polished. Examples are scarcely needed. With respect to transparent substances it is seen that in proportion to their transparency is the vividness of their local colour when light shines through them. Thus the local colour of leaves, though it may be dark green, becomes of a lively brightness by their being seen in situations up against the light, and in which the light passes through them to the eye. But of opaque polished substances it will be observed that they seldom or never exhibit uniformly their local colour.

3. As forming reflexes cast from one coloured sub-

found unconnected with the other talent. Again, there are some performers who modulate with great beauty and felicity a *melody* or succession of single sounds, while others have greater power in ascertaining and executing *harmonious* combinations of them. To the former of these we may compare the artist who is successful in effects of light and shadow by the use of white contrasted with some one dark pigment; to the latter we may resemble the profound colourist, who, in company with Correggio, can traverse with a sure and clear eye all the mazes of chiaroscuro,

Untwisting all the chains that tie
The hidden soul of harmony.

It is, however, an encouraging fact, that constant practice improves a *good* eye. The student thus gifted should be in the daily habit of colouring from Nature. The benefits of this habit are to be seen in the superior discrimination of every good Portrait Painter on the subject of colour. Such a one may even have no eye for the general proportions of the human form nor of any thing beyond the natural shape of the human head; but as a colourist he will probably excel much better draughtsmen. The advice of Sir Joshua Reynolds, to make coloured sketches in preference to drawings merely pencilled or shaded in black and white, conduces to the same end. The only danger is, that the young colourist may run into a fault which has been well termed *modelling* a picture, and may be satisfied with a hasty process instead of careful previous outline and tasteful academical arrangement. (See Note (D.) at the end of PAINTING. But let the youthful Professor only give daily attention in an equal degree to the sublime of Art, as well as to the detail of Nature, and his Titianesque execution will be worthy his Raffaellesque designs. Reynolds has suggested also a mode of composition by taking some one figure from a celebrated master and designing others to correspond with it. An air of grandeur is thus imparted to the whole work. If by a somewhat similar process, particular objects in a composition be gleaned from different scenes in Nature the selection will likewise amply repay the gleaner's industry. Many Painters have pursued the custom of modelling their groups for the purpose of obtaining a true representation of light and shade. Tintoret and Correggio are known to have availed themselves of this method.

* See Note (A.) def. 2. at the end of PAINTING.

† Tone (from τείνω, *tendo*) refers, in its original application, to the tension of strings in Music, in order to produce sounds. Supposing a string or wire severed into two equal parts: and the two strings thus formed to be stretched exactly to the same degree of tension; their sounds will have no interval between them, that is, the sound of both will be one and the same, or unison. A greater or less degree of tension in one of the strings will produce a greater or less interval of sound between them: one will have a higher and the other a lower tone. So, in Painting, intervals of shadow and of colour are greater between any two objects in proportion to the warmth, sharpness, decidedness, and distinctness of the one, and the greyness, coldness, neutrality, or faintness, of the other. The Art, therefore, of *toning* a picture is the process of giving to each interval of colour and shadow, its proper and natural value in any picture. There is the following difference, however, between the Musician and the Painter. The former has a fixed scale not copied from any natural phenomena, (unless the singing of birds may be so called,) but determined arbitrarily according to an arrangement of such sounds as, from experience, are found pleasurable: whereas the Painter copies from a scale of colouring and shadowing that actually exists and has at all times existed in Nature. The variety indeed of these tones of colour in natural objects is wonderful. It is infinite. Light, both in its hue and intensity, is continually changing. The same object viewed at different hours in the day has a different tone of colour. In the course even of a few seconds a variation in the direction of the Sun's light may completely alter the whole prospect. Not only lines and contours which were lively and bold may become retiring and feeble, but the whole of the scene may have a tint of blue, red, or yellow, or some combination of them (Art. 284, 285) thrown over it in an instant. Painters have here a great difficulty to encounter. Their tints and tones cannot of course be changed simultaneously with those rapid changes in the natural objects before them. If a Painting could be executed as quickly as the rays are cast in a camera upon a dark wall, then, indeed, the Painter might be said to catch the fleeting colour as Poets are said to "catch the Cynthia of the minute." But the Painter must be satisfied with an artificial arrangement established as nearly as possible upon principles conformable to the appearances in Nature. As in Nature there is a degree of relief and *warmth* (Art. 284, No. 5) in proportion to the nearness of any object to the plane of the picture; to the kind and degree of light upon it; and to the proximity of some other object enlightening it directly or by reflexion: so, in Painting, these are the principles of successful imitation though so frequently departed from. At the commencement of a picture those parts only will probably receive the chief care of the probationer in Art, and will be, as indeed they ought to be, most strongly defined and marked which are of the greatest importance, while the other portions of the work will be left in a less obtrusive and a broader state. But as the work proceeds the proper subordination of these minor portions is often most injuriously disregarded. "It is," observes an able artist and writer, "the general character of an object that is most important, and this character is to be preserved at the price of every other quality. It is this which is imprinted on the mind of every one, and is therefore paramount to all other properties."

And as in Nature there is throughout the whole of any scene a general tone of colour pervading the air according to the point of time when it is viewed, so, in Painting, the artist must have one prevailing hue which pervades in imitation of the atmosphere the whole picture, one prevailing tint which gives it character. This, like a key-note in Music, must mark and signalize the entire composition, and though, in Music, other tones and modulations into other keys are continually made, and other tints and other colours require, in Painting, to be introduced; yet the one prevailing key must reign throughout.

In copying from Nature the Painter has the advantage of choosing, among the multiplied appearances of the same object, that appearance in shade and colour, which, without altering its form, may render it most agreeable. In this selection he must study Harmony of Colouring. Here is another phrase from the vocabulary of the Musician. As, in Music, certain tones, when sounded together, blend agreeably according to a scale fixed and drawn from experience; so, in Painting, certain colours and tints are known to blend harmoniously with others. Also as, in Music, discords and harsh combinations arise from certain intervals of sound striking the air at the same moment; so, in Painting, violent painful and startling effects arise from *unnatural* juxtaposition of certain colours. We say unnatural, because in all appearances of Nature, (that is, in all appearances out of the Painter's canvass,) there is a wonderful effect of harmony caused by the intervening and circumambient air; which, by its one prevailing *tone*, overcomes in most instances all jarring and violent opposition between any two objects placed near each other even of the most glaringly discordant colours. This seems effected by an apparent mingling or union of the rays of each at the respective points of contact of the two objects, and is aided by the grey of distance caused by the intervening air which appears to neutralize the colours otherwise harshly opposed.

From this proceeding of Nature the Painter collects a method of *toning* his picture and reduces it to one harmonious effect as a whole. Greys are an important medium by which he must work to neutralize and subdue all uncalled for harshness in colouring; and for the same end a compound tone mixed from the two opposing colours may be introduced to qualify his greys for the undertaking.

Painting.

stance upon the surface of another.* Thus, though the local colour of leaves be green, yet such of them as reflect the blue of the sky will have bluish reflexes; while others that reflect the rising or setting light of the sun will have reddish or yellowish reflexes.†

4. As having various degrees of *strength* or of paleness, which implying more or less shadow, make prominent the parts so shaded, (Art. 283,) and give us ideas of solidity. Thus by moonlight, or in the white or greyish light of noon, with the sun veiled in clouds, a piece of drapery, according to its lights and shades, exhibits numerous tints‡ of one and the same local colour, sufficient to convince us of its being a solid body, though far less conspicuous than in sunshine.

5. As contributing to give prominency by its *warmth* to certain objects, or by its coldness, to throw back certain other objects into distance. Thus the blue tones§ of a mountain or of a building, assure us that a quantity of atmosphere intervenes, while certain warm tones intermingled at their summit convince us of their elevation. Similar effects are found in all objects proportionably to the power of light.

(285.) But colour, besides giving identity and prominency to objects, has a further qualification, that of giving pleasure to the eye by certain agreeable combinations of coloured rays.‖ An acquaintance with these, however, comprises, as any student may soon find, but a slight portion of the knowledge of Painting. It amounts to little more than the ability of producing, by the juxta-

Of Composition.

Primitives	red,	vermilion,	wild poppy.
	yellow,	king's yellow,	butter flower, or meadow ranunculus.
	blue.	ultra-marine,	cornbottle flower.
Mediates	orange,	red orpiment,	garden marygold.
	green,	sap-green,	leaves of the lime tree.
	purple,	——	hairy sweet-scabious, or the flower of the common Judas tree.

1. Respecting the first division, or prismatic circle, (fig. 5,) yellow, red, and blue being the simplest elements, take their places at the greatest distance from each other in the circle. Between these respectively are placed the mediates, *viz.* orange, green, and purple. For if red and yellow be mixed, they will produce an orange, and therefore it is placed between red and yellow: if yellow and blue be mixed, green is produced, and accordingly takes its place between those two colours. In like manner, purple produced by blue and red, must be placed between them. A gradual change of the colours will be observed when viewed successively from the top towards the right. Red will be seen softening gradually into orange; the orange to yellow; the yellow to green; that again to blue, which graduates to purple. The purple coming to the upper part of the circle is lost in red, which completes the whole. In this scale it is manifest there cannot be a colour composed of more than two of the primitives. The number of colours in this circle are eighteen. Each of these is divided by concentric circles into twenty parts, or degrees of power, from the deepest and strongest to the weakest, or from the outermost circle to the innermost. These degrees are called tints, of which the whole circle contains 360, ($18 \times 20 = 360$.) So that each of the colours in the innermost or smallest circle has twenty degrees of power, while each of the outermost possesses only one.

2. The division, or scale named compound, (fig. 7,) is supposed to contain all those colours which may possibly be made, where all the three primitives are employed conjunctively. In order to effect this possible combination, the three mediates, orange, green, and purple, are substituted for the three primitives, red, yellow, and blue. Each of the mediates being composed of two primitives, will, according to the example of the first diagram, (fig. 5.) and by the same mode of proceeding, produce other compounds and their tints, which in this second scale (fig. 7) (exclusive of the orange, green, and purple included in the prismatic) amount to 15 colours, and when each is divided into 20 degrees of power or strength, will produce three hundred tints, which being added to the 360 containing in the prismatic scale, form a total of 660; yet the colours producing so great a number of tints amount to no more than 33, ranged in such a natural order, as easily to be retained in the memory.

Prismatic. *Red*, orange-red, red-orange; *orange*, yellow-orange, orange-yellow; *yellow*, green-yellow, yellow-green; *green*, blue-green; green-blue; *blue*, purple-blue, blue-purple; *purple*, red-purple, purple-red. Compound. *Orange*, olive-orange, orange-olive; *olive*, green-olive, olive-green; *green*, slate-green, green-slate; *slate*, purple-slate, slate-purple; *purple*, brown-purple, purple-brown; *brown*, orange-brown, brown-orange.

"This systematic arrangement will be found of use in contrasting colours. If a contrast is required to any colour or tint, look for the colour or tint in the system, and directly opposite you will find the contrast wanted: *viz.* suppose it is required to know what colour is most opposite or contrary in hue to red; look directly opposite to that colour in the primitive scale, (fig. 5,) and the contrast is found to be green, which is the compound of the two other primitives. So likewise the diametrical opposite to blue is orange, and to yellow purple."

The author proceeds to remark the usefulness of his theory to the process of mixing or blending colours. Many do not admit of being mixed together without producing a negative, neutral, or unmeaning colour, *viz.* green and red of four degrees of tint; blue and orange of five degrees; yellow and purple of six degrees. "But if the colours so mixed are possessed of all their power, they then produce a deep black, as all opposites in either scale will do. No pure colour can be so formed. Therefore any two colours, in order to produce a third by their mixture, must not be chosen at so great an interval or distance as one-third of the circle. The nearer they are situated the better. Suppose an orange colour wanted, red and yellow will effect it; but red-orange and yellow-orange mixed will do much better."

Likewise if the colour of a picture, or any part of it, be too

---

* See Note (A.) def. 3. at the end of PAINTING.

† See Note (C.) on reflexes of colour.

‡ By *tint* we would be understood to mean a particular degree of strength or of paleness in any colour. Thus in the diagrams to illustrate the prismatic and compound scales of colour. (plate xi. fig. 5 and 7.) the strongest tint of colour is at the inner circle numbered 20: the palest at No. 1, or the outer circle. The student (to whom we recommend to construct the figures considerably larger, and to colour them for himself) will observe that there are twenty different shades or degrees of strength reckoning from the whitest to the deepest intensity of each of the eighteen tones.

§ By *tone* we understand the interval (see the third Note to Art. 234) between two colours as to degrees of coldness or of warmth. (Art. 296, 297.) Thus purple is a warm colour when compared with blue; and a cold colour when compared with red or yellow, &c. In like manner, green is a warm colour compared with blue: and a cold colour when compared with yellow, red, orange, &c. The degree of difference is termed a tone, and this degree might perhaps be marked like any point in a mariner's compass, (see plate xi. fig. 5 and 7,) if the circle were so divided.

‖ The warm colours (yellow, orange, red, and their compounds) are understood to attract, and seemingly to approach the eye; on the other hand, the cold colours (violet or purple, blue, and green, with all compounds of blue) are considered to give the appearance of receding. We here subjoin a brief abstract of the theory of Moses Harris, published about 1781, with a dedication to Sir Joshua Reynolds, who gave it his approbation. The opinion of the greatest colourist of the English School gives the system a strong claim to our attention. Harris divides his scheme into two parts:

1. The prismatic scale or division. (plate xi. fig. 4, 5,) admitting no other colour but those shown in the prism.

2. The compound division, producing all the other colours to be found in Nature.

Pursuing the Newtonian view, he regards white and black as colours: white, a perfect combination of all as representing light; and black, as also a combination of red, blue, and yellow, in equal force and of the strongest powers. He conceives these three equals, by equally opposing each other, to be each of them destroyed, so that none of them is distinguishable, but all become absorbed in total obscurity. To illustrate this, he supposes the three primitive colours to meet in their fullest powers or strength in the form of three triangular pieces of stained glass, placed over each other to verify the effect. (Fig. 4.) He conceives that precise and clear ideas of the three primitives and of their mediates may be conveyed by reference to some known substance or flower.

Painting.

position of certain colours, the same sensation as by a well-composed nosegay or by the wing of a butterfly.

(286.) Another use of colour is 'ts suitableness for conveying or encouraging certain sentiments, that may be in conformity with the intended moral of a picture. We do not here enter into nor recommend the emblematical purposes to which colour was applied by antiquity and by the early Schools of Art.* But there is evidently in colours as well as in sounds, a sentimental tendency. The blind man, who likened scarlet to the sound of a trumpet, was not untrue to Nature. Some colours awaken cheerfulness and gaiety; some invite to repose and peace; others excite ideas of grandeur and splendour; some challenge rivalry and hurl defiance,† while others diffuse impressions of a solemn character, such as of reverence, of contemplation, of loneliness, or of melancholy.

Of Composition.

(287.) iii. We come now, lastly, to the third consideration which ought to occupy the mind of a composer, namely, his *means*, *rules*, or *modes of representation*. These are so numerous, and in such variety, according to the genius of each individual artist, and the nature of the vehicle he employs, that to enumerate them completely would be like describing every kind of musical instrument, together with the peculiar merits of every remarkable performer upon each. The few particulars which our remaining space permits us here to collect, may assist towards a useful system of practical composition.* In order to as plain and compendious a statement as possible, we give a summary of these particulars in the following rules: and observe,

iii. Means, rules, or modes of representation.

(288.) That, in a Historical arrangement, the inventive powers of the composer, like those of a Dramatic Writer, should be directed to every probable circumstance which may contribute to heighten the effect, and which, though in strict truth it did not happen at the time, yet might have happened, without doing any violence to probability. For example, it is a Historical fact that General Wolfe, when he fell at Quebec, commanded such officers as

Pictorial licenses.

strong, for instance too red, or too yellow; the same consideration of the author's scheme points out a remedy, by uniting in the case of redness its opposite, *viz.* green of the same tint or degree of power with the red; and in the case of yellowness by uniting purple of the same power with the yellow. He then observes upon the difficulty of finding materials to give a perfect example of his scheme: but adds, that indigo, gamboge, carmine, and sap-green, may be called perfect, because each of them contains the twenty degrees of power, or even more. He conceives, that if his colours were divided into a greater number of tints or divisions, such an attempt would rather give greater confusion than utility to his arrangement. We may add, that the reader may easily make the attempt for himself by composing a third scale, of which the three intermediates, brown, olive, and slate, shall be the factors instead of the mediates, orange, purple, and green. (Fig. 6.) The experiment, indeed, has been actually made and published by the ingenious Mr. Hayter.

* We read in *Exodus* of garments of blue, purple, and scarlet; which colours either from their simplicity or forcible qualities, have been employed by artists of all ages in painting draperies of sacred or noble characters. Colours also have a fitness according to the several personages represented. Thus we read of "the azure zone of Venus, of the sea-green garments of Neptune, and the red mantle of Mars." Burnet, *On Colour*, p. 38. "Yellow," observes Mr. Craig, "is understood to represent lustre and glory; red to represent power and love; blue implies divinity; purple, authority; violet, humility; and green servitude. Upon this statement and explanation we are enabled to account for the invariable practice among Painters of portraying the blessed Saviour of Mankind in garments of red and blue: the red implies his comprehensive love to the human race, as well as his power to fulfil the dictates of that love; and the blue signifies his Divine origin." *Lectures*, p. 175.

† "There are," observes Mr. Payne Knight, "some kinds of birds and quadrupeds, such as turkeys and oxen, to whom scarlet is peculiarly painful; as they will run at it, and attack it with the utmost virulence and fury. Green, on the contrary, appears to be grateful to the eyes of all animals; though colours, as well as sounds and flavours, are more pleasing when harmoniously mixed and graduated, than when distinct and uniform. Indeed they are almost always graduated and broken in Nature. In every individual pink or rose, whether its colour be white, yellow, or red, infinite varieties and gradations of tint are produced, not only by the different modifications of light and shadow, but by the various reflected rays which one leaf casts upon another, according to their different degrees of opacity and exposure." Knight, *On Taste*, 8vo. 1805, p. 62.

"Colours that are most agreeable to the eye are such as the eye has become accustomed to from their being constantly presented to the sight; such as blue, white, or grey in skies; green in trees and grass; brown or warm grey in earth, road, or stone. As therefore the eye has been formed upon the contemplation of such colours, the general look of Nature can be given only by admitting large portions of such colours into the picture; if they are more vivid than are most commonly observed in Nature, the charm is destroyed. All colours rendered familiar by the introduction of artificial means are guided by the same laws. A green, though quite unnatural when employed upon herbage, might be strictly natural in representing the local colour of a piece of drapery; yet we may safely admit that the most brilliant colours may receive an advantage in being toned to those hues most common in Nature, especially if they form a large mass in the picture." Burnet, *On Colour in Painting*, p. 5.

* Next to being keenly susceptible of such impressions and appearances as are proper for Painting, the artist must possess to a high degree, the faculty of *methodical arrangement*. Having chosen his subject, he must be further gifted with a genius to contrive its execution. To knowledge and intuitive perception of whatever is grand, beautiful, or interesting in visible objects, he must add familiar acquaintance with the means and materials of his Art. It is not enough to have his picture designed, completed, and hung up only in the gallery of his fancy. Any dreamer can paint thus in his sleep, and can surpass any thing that ever was done before in Painting. But the work of the waking artist must be substantial and tangible. The "airy nothing" must have a local habitation, adequate to its reception; systematically, carefully, and durably constructed.

System, with Painters, has a twofold operation. It relates, in the first place, to the intellectual impressions to be conveyed to the spectator. This includes the knowledge and use of expression; on this head we have already offered some remarks. (Art. 279.) Or, secondly, it relates to the materials for conveying these impressions, *viz.* outline, light and shade, chiaroscuro, colouring, grouping, &c. System arrives at its highest excellence when the latter of these two operations is not seen nor noticed in comparison of the former. In Raffaelle, for example, the expression is so intelligible, so direct, so forcible, that you forget the contrivances and materials by which that great master accomplishes his purpose. To any one, not a Painter, the most *expressive* performances seem the easiest. The gifted artist, however, well knows the pains, the ingenuity, the skill, and judgment exercised for their accomplishment.

For the general mediocrity of modern Art, a very good practical reason has been assigned. Moderns have more taste than genius. As it is the province of genius to make her own rules, not hastily, but with all the circumspection of a superior being; to create, if we may so express it, a world of her own, but at the same time to regulate her creation by the laws of strong sense drawn from the code of Nature, and judiciously adapted to circumstances: so it is the fatal peculiarity of taste to follow no rules but what are ready made. Taste fluctuates. Taste seems to live only by the breath of fashion. To-day what is extravagantly praised becomes insipid to-morrow. Taste would improve upon Nature. Hence we see that style has been so often more favoured, more trusted to, and more studied than natural expression; and that Schools of Art have failed to benefit and advance the cause which they profess to maintain.

Genius, on the contrary, continues true to Nature, and like Nature is always various, always interesting or exciting. It happens in Painting, as in Music, that genius is guided chiefly by Nature; but that taste without genius tends to draw the eye as well as ear away from Nature to the performances of other artists that have been successful competitors for fame. It tends to induce a habit in one artist of copying from another, instead of pursuing a system carefully digested, and previously established for himself; the result of his own experience and industrious observation of natural phenomena, as well as of the labours of others.

Painting.

were about him to leave him, and continue their pursuit of the enemy. The only persons who remained with him when he died, were the surgeon and a grenadier who attended him as his servant. West, however, in his celebrated picture, "The Death of Wolfe," has, with great ability, introduced various other figures, which give to view a number of interesting associations connected with that event. The Indian chief, in particular, who watches the expiring hero, acquaints us with the place where the scene is laid and identifies it with American History. Copley's "Death of Chatham" is a similar example. The Lords appear in their robes. The fainting fit also of Lord Chatham (for he did not die in the House of Lords) was not actually witnessed by many of the persons introduced, for the sake of scenic effect, into the picture. Cases might also be mentioned where two events which happened at the same time are introduced into the same composition. Of this, "the Transfiguration," by Raffaelle, is an instance. It was while our Lord was transfigured in the Mount, accompanied by St. Peter, St. James, and St. John, that the remaining nine disciples were implored by the afflicted parent of the demoniac to heal his son.

(289.) That a similar exercise of taste and fancy is not only admissible, but is essential to picturesque arrangement in grouping* objects, whether animate or inanimate. The position of the figures, the direction of the light, the formation of masses to give breadth, (Art. 294,) and of contrasts to give variety, are not necessarily such as did occur at the time of the event, or scene to be painted. It is sufficient that they might, without improbability, have occurred.

Of Composition.

(290.) That light and shade may be most conveniently divided into five parts or gradations, namely, No. 1. Extreme light; No. 2. Half light; No. 3. Middle tint; No. 4. Half dark; and No. 5. Extreme dark.* These gradations may be expressed by five tints of some one colour taken from either of the scales compound or primitive, (plate xi. fig. 5 or 7,) supposing the colour to be whitest when most approaching to extreme light at the outer circle, and deepest or darkest when approaching to extreme shadow at the inner circle. Between these two extremes of the twenty shades of tint there mentioned, let the space be divided by five. The extreme light, or No. 1, will then lie between the outer

Five general gradations of light and shade.

---

* "In commencing a composition, it is customary to mark the middle of the space, for the purpose of arranging those points we consider of most importance to the subject; dividing the picture for the regulation of the masses of light and shade, ascertaining and fixing the horizontal line, &c. A mode of constructing the composition in reference to a diagonal joining any two corners of the picture is often suggested from the perspective effect requiring a length of line, thereby obliging us to place the point of sight at one side of the picture; sometimes it is suggested from the group requiring a large space; which a diagonal line secures, as in the 'Elevation of the Cross,' by Rubens; or sometimes it is suggested from the conduct of light, as in his picture of the 'Descent from the Cross.' Cuyp, adopting this mode of composition in most of his pictures, (which are generally sunset or sunrise,) places the focus of light at the bottom of the sky, thereby enabling the distant part of the landscape to melt into it by the most natural means; while the strongest part of his sky, being at the opposite angle, produces the greatest expanse, and mixes and harmonizes with the dark side of the picture. Thus the eye is carried round the composition till the two extremes are brought in contact, the most prominent with the most retiring. In compositions constructed upon this principle, (particularly where the landscape occupies a large portion,) many artists carry the lines of the clouds in a contrary direction, to counteract the appearance of all the lines running to one point; thus using the dark of the clouds to *antagonize*, as it is termed. By such a practice, an apparently better equipoise may be produced, but it sacrifices many advantages. For we observe in many of the pictures of Cuyp, Rubens, and Teniers, where the figures, landscape, and sky are all on the same side of the composition, that a rich and soft effect is produced; and that the strong light and dark touches of the figures tell with great force against a background of houses, trees, &c., which are prevented from being harsh and cutting by mixing their edges with the clouds, or dark blue sky. This doubling of the lines (if I may so express it) gives a picture that rich fulness which we often perceive in a first sketch, from its possessing several outlines. Those who imagine that by thus throwing the whole composition on one side, a want of union will be produced, will be convinced of their error by perceiving (in any work thus constructed) how small an object restores the balance. Since the smallest object by being detached and opposed to a faint background of extreme distance receives a tenfold value."

"Raffaelle, in the 'Transfiguration,' has made the principal figure of the lower group (an interesting young female) detach itself from the ground by a strong warm light cutting against the shadow, and by a dark blue mantle coming in contact with the light. From the circumstance of her addressing the Apostles and pointing to the demoniac, the two sides are united; and the figures are so linked together that the eye is carried round until we arrive at the most projecting points, namely, the hands and feet of the Apostle with the book. The disciples express their inability to perform the cure, while two of them, pointing to the Mount, refer the people to Christ; and thus connect the lower with the upper half of this sublime picture."

"It is not only necessary that a group should have hollows for the reception of shadow, but also projections for the light to rest upon; it not only ought to possess a good general form in the outline which defines it, but the figures must also be linked together in such a way as to lead the spectator in amongst them. They must appear to have room to stand upon, and every figure must keep its appropriate place, according to its relative distance from the eye. Hence a form of composition by a concave or convex line has been often adopted as the simplest and best, and possessing the greatest variety of advantages. That it is so generally used may cease to surprise, since we find it applicable both to the regularity of Raffaelle and the irregularity of Rembrandt." Burnet, *Practical Hints on Composition*, p. 10, 11. 26, 27.

* We translate as follows from Raffaelle Mengs, in his *Rules of Painting*. "To facilitate the balance of colours in a picture, and to regulate it suitably to the kind of composition chosen. I repeat what I before alluded to, in regard to *five* classes of materials for representing all the appearances of Nature; namely, five tints of colour. Of these five, two belong to the lights and two to the darks. The other is a middle tint, which I call the purest of the five, as not belonging either to light or dark, but receiving and reflecting both in an equal degree. If out of these five materials, the Painter uses only two, and completes his picture by means of white by itself and black by itself, a confused effect will result; because white as well as black has the property of excluding every other colour; the former in the lights; the latter in the shadows. But if by the mode I am endeavouring to explain, a certain proportion of these two be taken, sometimes a higher degree of black, sometimes a higher degree of white, and sometimes a middle tint, a pleasing variety will follow, notwithstanding the uniformity and monotony of these two colours."

"A juxtaposition of the two extremes will give force, asperity, or hardness. A large interval of middle tint extended between them will soften that hardness; and further, a careful arrangement of the different tints, so as to place each degree, if possible, between the one above and the one below it in the scale, preserving only sufficient distinctness for a correct representation of the objects painted, such a mode of operation will cause the greatest imaginable softness and sweetness."

"Again, by a separation of lights into masses with other lights and of darks with other darks, a picture may obtain an appropriate air of gloom, or of grandeur. (*Resterà mœstosa e grandiosa.*) And, lastly, by adaptation and combination of these means in all their endless varieties, any effect, clear and lively, or crude and confused, or expressing softness, tenderness, or any other sensation may be produced. If to this effect of light and shade, the varieties of colour be added, in accordance with the same principles of composition, (*colle stesse ragioni,*) the effect will be infinitely heightened; but the colourist must beware of repeating too often the same lights and the same darks in equal form or in equal quantity upon his picture, and must also shun carefully all violent extremes. He must give his whole attention to truth and verisimilitude. He must remember that chiaroscuro is the foundation of what is termed harmony, and that colours are only tones which characterise the forms of bodies." *Lezioni Pratiche. Opere di* Mengs, tom. ii. p. 275.

Painting.

circle and the circle marked four shades or degrees of tint. The half light, or No. 2, will lie between the circles of four and of eight degrees; the middle tint, or No. 3, between the circles of eight and of twelve degrees; the half dark, or No. 4, between the circles of twelve and of sixteen degrees; the extreme dark, or No. 5, between the circles of sixteen and twenty degrees. But it would, perhaps, be a not less correct illustration, and more in accordance with general practice, to express the highest light by positive white between circles one and four; the extreme dark by positive black between circles eighteen and twenty; and the intermediate three tints by degrees of black and white mixed; No. 2 having most white, No. 4 most black, and No. 3 an equal portion of each.

(291.) That a picture consisting chiefly of No. 1 and 2 gives opportunity for objects containing the extreme black, or No. 5, to stand out with great force and clearness; but strength of colour (which may be said to perform the office of No. 3 or 4) will be requisite to prevent feebleness, and to give a full firm effect to such a composition. This effect of colour is frequently exemplified by Cuyp, in his clear and beautiful, and at the same time substantial representations of broad bright day.

(292.) That if No. 4 and 5 compose the greater part of a picture the objects of No. 1 will be proportionably brilliant, but they will be apt to stare, and have the fault of spottiness, while the remaining objects will be buried in obscurity. Here again intermediate demitints (often the effects of colour) interpose to give breadth and richness.

A picture of this latter kind, of which the greatest proportion is composed of No. 4 and 5, is said to be painted in a *dark key*; as a picture composed principally of No. 1 and 2 is said to be painted in a *light key*.*

(293.) That if the greater part of the picture consist of No. 3, a fair field is open both for the higher and lower divisions of the scale to display an equal degree of prominency; but in this case there is danger of monotony, of sameness, and of such regularity of gradation as will not give due consequence to the principal object. Insipidity, however, may be obviated by extreme lights or darks, judiciously and strikingly introduced. Suppose, for instance, the ground of a picture to be of middle tint, or No. 3, joined with half dark, and over this ground let the *extremes of light*, No. 1, be introduced; some degree of harshness may occasionally happen, which must be tempered and softened by No. 2. Let, on the other hand, the *extreme of dark*, No. 5, be laid upon a ground of No. 3; this ground of middle tint will by the contrast be rendered more in union with No. 2. (Art. 306.) Let, thirdly, the extreme dark have a place on No. 4, or the half dark, the small interval of gradation will occasion breadth, and softness, and repose. (Art. 295.)

Of Composition.

(294.) That in proportion to the extent of light and shade, will be the degree of breadth in a picture.

Breadth how effected.

Breadth of light will be effected by an omission of so much of No. 3,* or middle tint, (Art. 290, 293,) as will leave larger space for No. 1 and 2. This kind of composition is most adapted for scenes of daylight, during which, in Nature, the darkest shadows (or those of No. 5) are most cutting and conspicuous, from their being most isolated. (Art. 305.)

Breadth of shadow is obtained by allotting the largest portion of surface in a Painting to No. 3 and 4. This is the practice of the Rembrandt school. It is adapted admirably to interiors, to appearances of moonlight, of storm, and "darkness visible," and finds agreeable employment for the imagination of the spectator, who, under no restriction from regular outlines, or contours, may give such shapes as he conceives most suitable to mysterious, indefinite, unarticulated forms.†

As breadth of light has been most aptly termed the Allegro of Painting, so breadth of shadow maintains the character of Il pensieroso.‡

---

* Pictures painted in a dark key possess many advantages which have led our greatest colourists to its adoption; but as low-toned pictures are apt to look heavy and black, unless richness of shadows or sharpness of lights be preserved; so pictures painted on a light key are apt to look flat and unfinished without the greatest circumspection. In Nature, the intense light of the sky, and the atmosphere filled with its innumerable refractions, spread a luminous character over the whole scene. To represent this, the artist can only employ a greater degree of whiteness, a very inadequate quality. Hence the difficulty of imitating the splendid brightness of mid-day, or the brilliant effects of an evening sky. In treating the one, unless the delicate varieties of the half lights are attended to with the greatest care, the picture will look crude and unfinished; for the tints being so nearly allied to each other, the exact sharpness to define them, and their exact tone, either by repeated scumbling, or mixing them to the proper tint in the first instance, require the nicest attention and most refined study; otherwise the shadows will be powdery instead of pearly, or the lights white instead of luminous. In the other arrangement mentioned, (viz. for the glow of evening,) the yellow tones may become solid and foxy, if deprived of the delicate cool tints so necessary to prevent their appearing too hot, and to give the whole that tremulous unsteady appearance which light possesses in Nature. "Light pictures," continues Mr. Burnet, in his *Treatise on Chiaroscuro*, "from the tenderness of their light and shade, require the colours opposed to each other, whether blue opposed to red, or yellow to cool grey, to be managed with the greatest delicacy; otherwise their strength will destroy all appearance of light and air."

In light pictures strong colours can stand only as middle tint, or for leading the light into the shade, but can appear as lights only by receiving relief from strong shadow. We often find them, in Paul Veronese and others, made to stand as darks, or to give objects an appearance of solidity without breaking up the general mass of light in the picture.

* A light figure may be strongly relieved even by a light background provided the colours are opposed to each other, thereby preserving the greatest breadth of light. The warm colour of flesh, for example, necessarily detaches itself from a cool ground. In such situations, we often find Rubens and all his pupils bring strong blue in contact with the head, a contrivance which gives it great value and relief, and a luminous effect.

† The picture "Jacob's Dream," by Rembrandt, in the Dulwich Gallery, gives an admirable illustration of the effect here alluded to. The angelic spirits, "ascending and descending," are sufficiently prominent, and yet have no distinct or positive contour, and are surrounded by such a dreamy stillness and ghostliness, that the imaginative spectator is impressed with their importance in the scene, and yet must draw upon the stores of his own invention to give them any form.

‡ One of the many difficulties with which the artist has to contend, is to represent the rotundity of objects composed of strong local colour. In the earlier masters we find the figures possessing a flat, inlaid appearance, with the lights strongly charged with local colour. In the next advances of the Art, we find the light part of figures kept nearly white, though clothed in strong coloured draperies; which we even perceive in many of the pictures of Raffaelle, such as his Transfiguration, &c., till at length we find the strong colouring of Giorgione and the delicate light of Correggio, combined in the works of Titian, who has united the severity of the earliest masters with the softest effects of Nature. Correggio was the first who attended particularly to the influence of aerial perspective, and who preserved the breadth of light and shade undisturbed by colour. In this he has been followed by Rembrandt and Reynolds. His lights are much impasted with white, over which are laid colours of the most delicate nature, or semitransparent washings, which permit the ground to shine through, giving a luminous effect; or tints in which a considerable portion of white is mixed. He thus preserved the rotundity of his figures, while he filled his shadows with a juicy vehicle, in which transparent particles of rich

Painting. Repose.

(295.) That when such a balance is maintained between the light and shades and colours of a picture, as that it shall neither be feeble, (Art. 291,) nor spotty, (Art. 292,) nor insipid, (Art. 293,) but shall draw the attention of the spectator to its details, without any startling or too abrupt effect on the one hand; and on the other, without causing weariness, or any painful effort of attention, the result of such a balance is properly termed *repose*.* This term, however, is most usually applied to effects produced by breadth of shadow, as having less in them to excite or arrest the eye.

Of Composition. Warm and cold colours made to assist each other, and adapted to the character of a composition.

(296.) That the warm colours, (namely, yellow, orange, and red, see plate xi. fig. 5, 6, 7,) together with such compounds as incline decidedly towards them, arrest the eye by their exciting properties,* and like light upon dark, or dark upon light, (Art. 290, 294,) give prominency to objects. Also the union of warm colours is promoted by the introduction of a cold colour. Thus the whites, yellows, reds, and browns of a picture receive increased harmony by the presence of a blue.

(297.) That the cold colours (namely, violet or purple, blue and green, together with such compounds as have blue for their foundation) have a much less exciting influence upon the eye. They have the quality of making objects retire; and seem to produce a similar effect to that of middle tint upon half light, or of extreme dark upon half dark. (Art. 290, 293.) Cold colours, therefore, should perhaps predominate in compositions of a quiet, meditative character. Also the union between their cold tones is essentially promoted by introduction of a warm colour. Thus the whites, blues, greys, and greens of a landscape will be made to blend much more harmoniously by the presence of red, which derives at the same time from its isolated situation (Art. 305) a force and brilliancy approaching to harshness.

Borrowing his terms from Music, the Painter, when the prevailing tone of his picture is cold, pronounces it painted in a *cold key*, on the other hand, when the prevailing tone is warm, the picture is said to be in a *warm key*.

(298.) That pure and bright colours (plate xi. fig. 4) having greater force than when compounded, should occupy the chief points in a picture, and should be more or less employed as the composition is of a brisk, a quiet, or a mournful character. Colours composed of two primitives may be made to blend and soften by a small portion of the third primitive. Any colour may be tempered with white or with black. By means of these extremes (the observation is made by Mengs) may any colour in the hands of a judicious artist be reconciled and brought into harmony with another.†

---

warm colour are floating, thereby leading the light into the darkest masses without its being reflected from their surface. This property of the illuminated parts of bodies to give back the light and the absorption of it in the shadow Correggio may have learned in studying his models by lamplight, as his breadth of light and shade leads us to suppose was his practice. Reynolds advises, for the sake of harmony, that the colours, however distinguished in the light, should be nearly the same in the shadows, and of

a simple unity of shade
As all were from one single palette spread.

"This, however, must be done with caution, as we find in Nature, and in the best colourists, exceptions in the shadows of many of the colours. For instance, in the shadows of red we find the local colour preserved more strongly than in the shadows of other colours: and white when warm in the light, is cool in the shadow. When the mass of shadow is warm, the introduction of some dark blue or cool black, will be of service to clear it up, and give it air; while the introduction of red will often focus the warm colours, and give them richness, together with more appearance of truth. I may also notice here that nothing gives a more natural look than to preserve in shadow the local colours of a shadowed object, provided they are not too light to disturb the breadth, for they give clearness and precision. They show, also, that particular relation which one colour bears to another, for colours in shadow have not the property of communicating their reflections to one another, whereas in the strong light the rays are refracted through the atmosphere from each colour tinging the whole with harmonious union. Distinctness of local colour and precision of outline are the peculiar character of objects placed out of the way of strong light. In sunshine the outline of objects enlightened is full and soft, surrounded by tones of an indistinct nature. In Rembrandt we find particular attention paid to the effects of light upon colour, effects which his rough manner of using the colours contributed not a little to give. Sir Joshua Reynolds seems to have constantly contemplated this bathing of his colour in the splendour of sunshine. If he has given us a translation of the works of Titian unimpaired, it is from his having made use of the Dutch version. That brilliancy of colour in the lights of his pictures, that mixed chaotic hue made use of to give it value; that diffusion, by the means of one colour carried into another—touching in his white with yellow tints, working in his yellow with red touches, and enclosing his red with black of a cool tone, so as to make even his shadows partake the influence of light—thereby preserving the greatest breadth of chiaroscuro, are the peculiar properties of Rembrandt. In Titian we have the white drapery more distant from the flesh tint than in Rembrandt and Reynolds, in whose pictures the luminous character of the flesh seems to show its influence upon the lights of the white drapery, as well as to tinge its grey shadows with a reflex of yellow. This extension of light, therefore, by means of colour is the mode of combining the powers of both, a mode founded in Nature, and adapted by the best colourists." See Burnet, *On Light and Shade*.

* Ostade's pictures have the peculiar property of looking well at a distance. They thus attract the spectator towards them. When we approach to take a nearer view, we observe that this effect is produced by their possessing a decided mass of light obtained by means of a light wall or sky, &c. His heads and hands form a number of luminous spots upon a mass of half tint, and are rendered of more value by the introduction of yellow and blue draperies. Such a system requires considerable management in order that these spots, to prevent confusion, may take agreeable and decided forms. Such a system, however, is the more easily pursued in Ostade's works, because he has seldom any particular story to interfere with the arrangement. In pictures upon a dark scale, (Art. 292, 294.) harshness arises commonly from the want of sufficient quantities of middle tint and half light. (Art. 290.) By this omission, the principal light is too much defined: the fault of Caravaggio.

* The Chevalier d'Azara, who edited the works of Mengs, adds a note at the commencement of the *Lezioni pratiche*, to state his (D'Azara's) opinion that the rays from dazzling objects give more than the ordinary impulse to the organs of vision, and therefore excite them too much, whereas rays of the opposite extreme, giving a less impulse than that to which the eye is habituated, cause too little action; and "thus both extremes" (like those of burning and freezing) "are disagreeable." Vide *Opere di* Mengs, Italian edition, vol. ii. p. 272.

† "White reduces the asperity (*asprezza*) of any colour till its tone assumes mildness and tenderness: black also removes harshness, but in a different manner, by smothering (*smorzando*) and obscuring it. Rembrandt, by means of shadows, shows how to reconcile the most incompatible of colours. He leaves only one spot of such colours in light; he separates some of them from the rest; and when obliged by the nature of his work to bring them together, he invents some artifice for enlightening the one, and enveloping the other in shade; since, if he had placed them in conjunction, he would, by the laws of chiaroscuro, have only represented light and shadow without colour. A method, the opposite of this, was that of Baroccio, who harmonized all his colours by the aid of white; reducing, indeed, their force, but bringing into concord their most discordant tones, so that (by this increased breadth of light) his picture was an example of chiaroscuro artfully composed, and having considerable brightness and prominency, (*molto rialzato e ben composto.*) Rembrandt," he adds, "seems to have viewed his subjects in some cavern which only one ray was permitted to penetrate: Baroccio, on the other hand, appears to have beheld his only in the air or among the clouds, where perpetual lights and reflexes left him scarcely any shadow. Rembrandt, of these two extremes, is preferable to Baroccio, since some architype of Rembrandt's works may be found in Nature, whereas those of Baroccio have place only in the imagination." In some of the designs of Rembrandt, observes

Painting.

Colour, like light, requires a focus.

(299.) That as in the case of light and shadow it becomes necessary, for avoiding flatness and insipidity, (Art. 293,) to have a focus of light, so with respect to colouring a focus of colour may, with similar good effect, be made by repeating, in a stronger tint, in a favourable position, and in a comparatively small compass, some prevailing hue. And as in the case of lights and darks, a small portion of each introduced into the other is sufficient to produce a harmonious union; (Art. 295;) so also in the balance of warm and cold colours a similar process is similarly advantageous. Harmony may be effected, and yet by the same means the greatest breadth (Art. 294) preserved.*

(300.) That not only colour acts thus powerfully upon tints of the same hue, but exerts its influence more or less, according to its brightness, upon the tones of every other hue.†

Of Composition.

Colour as a shading material represents solidity.

(301.) That colours, besides their property of warmth or coldness, contribute more or less to the balance of light and shade in a picture. (Art. 284, No. 4, and Art. 299.) Thus a figure in red may serve the purpose of a half dark, (Art. 290,) while it serves likewise as a focus to the other reds of the picture. (Art. 294, last note.) The introduction, therefore, of any strong colour must be in subserviency to the balance of light and shade in a composition. If it destroys that balance it is introduced improperly. Mengs speaks of the colouring of light and shade, and means that every colour, besides its influence as giving warmth or coldness, has a duty also to perform in the shading of every picture, and holds a specific rank in the scale of lights and darks. Perhaps we might reverse the terms of Mengs, and make this property more intelligible by calling it the light and shade of colouring.*

Number of lights in a composition.

(302.) That in every picture there should be three conspicuous lights, differing from each other in power, as well as in size and form.† The distance between

---

Mr. Burnet, (*On Light and Shade*, p. 16.) he seems to have allowed the entire half of his canvass for repose, and to have confined his composition with all its lights and darks, and colours, to the other half. Very little often serves to connect the two. The dark manner of Rembrandt has advantages over every other, if kept within due bounds, as it enables the Painter to give a rich tone to his colours without their appearing heavy, which more feeble backgrounds would not admit of, unless the colours are to stand as darks instead of lights; accordingly we find Titian, Tintoret, Georgione, Rembrandt, and our own Reynolds all swayed by the same opinion.

* Thus in a landscape, the blue of the sky may be advantageously repeated by a drapery of stronger blue made to appear among the warm brown shadows of a foreground. In like manner the glow of a morning or evening sky may be focussed by strong red drapery, placed in the neighbourhood of greys and greens. The works of Claude and of Cuyp present continual examples. The effect, too, of all strong colour is to make the weaker tints of the same or of a proximate hue retire. Thus is obtained an interval between the strength of the one, and the comparative faintness of the other, for expressing space or distance: and the spectator's imagination becomes impressed with the idea of *airiness* in a picture, and of ample room for whatever objects may be introduced.

"Titian often has his red placed near the centre of his picture, which gives it consequence, and he either throws it into much light, or keeps it flat, according as he wishes it to tell as a dark or light in his scale of chiaroscuro. Mengs supposes Titian to have used colours more or less retiring upon his figures according to their situation. Such is not, however, his principle; and strong colours are more often used by him to support his composition, without any reference to their being employed upon the most prominent points. From Raffaelle to Rubens we often find them introduced upon background figures, as darks in light pictures, and as lights in dark ones: sometimes carrying the eye to the point of attraction, sometimes for clearing up the shadows. We often find portions of deep lake dresses running into the dark masses of Tintoretto and P. Veronese; and we know the more a picture is made out by colour, the lighter the effect will be, and the nearer allied to the appearance of Nature in open daylight." Burnet, *Hints on Colour in Painting*, p. 26.

"In many pictures of the Dutch School we see a perfect harmony sustained between the hot and cold colours of a picture: we see the warm colour contained in the foreground, and strong darks wove into the masses of neutral tint in a multiplicity of ways. To focus the warm colour of the ground, we often find figures dressed in red, or we find withered leaves, bark of trees, pieces of brick, &c. made use of, and observe warm colour insinuating itself into the colder by a variety of channels. We perceive the cool tints of the sky and distance diffused by the grey colour of wood, stems of trees, grey road or water, taking the reflection of the sky. In many of the works of Wilson and Gainsborough we see the richest effects of colour produced by this mode of arrangement; using the middle ground as a ground of union between the warm and cold colours." *Ibid.* p. 16.

† For example, green is greener in the presence of red than of any other hue; and red redder in the presence of green than of any other. Cool tones may thus be said to give more value and greater warmth to warm tones by being placed beside them in a picture, and *vice versâ*. Indeed, all reflected lights are of a warmer colour when the light is cool, and therefore, in such cases give greater warmth to the shadows. But these reflexes being comparatively of a lesser degree of warmth when the light is warm, they require the presence of blue or of some object of a cold colour introduced to give them value. (Art. 299.) It is also observable that if the strongest or deepest tints of colour be placed in the dark portion or side (Art. 294) of a picture, the shadows surrounding them will prevent their strength from wearing a dull, heavy aspect. They will appear under the influence of light, an appearance not to be obtained for them in any other part of the composition. Further it is to be remarked, that according as the shadow is increased in warmth, the light partakes a portion of its warm influence; thus in Rembrandt, where the dark masses contain burnt sienna or lake, the blues and greys receive a tinge of yellow; while in Teniers, whose shades are of a cooler brown, the blues and greys retain greater freshness.

In arranging the general tone of a picture, and the balance between warm and cold colours, it is not necessary for the light always to be of a warm tone. But when the light is cool it is important that the shadows should receive warmth either by the introduction of objects with warm local colour, and therefore, warm reflexes: or by such contrivances as are to be found in the Dutch School, in Rembrandt for example, who having admitted light mixed with cool pearly tints into an apartment, has been careful to illuminate the shadow by a fire purposely introduced in an opposite corner of his picture.

"At sunrise," observes Mr. Burnet, "when the sun's disk is visible by reason of the density of the atmosphere, we observe the yellow light round him tempered and softened down with delicate grey: which tint being also diffused over the local colours of the landscape gives truth and harmony. In Claude we perceive the same breadth, delicacy, and softness. In the evening when the atmosphere is less dense, we find the colour of the light more brilliant and less interrupted, tinging with the same hue every object placed within its influence. This we find also in Cuyp and others, who have painted landscapes under the same circumstances. Here is a good foundation to commence upon, and we can only produce an agreeable and natural appearance by employing such means. White and black can be reconciled only by the interposition of grey, and red and blue by the presence of a third colour, combining the properties of hot and cold. Light will be more easily spread by the lesser lights partaking of the same hue as the principal, and shadow more easily diffused by the same means. We thus preserve the breadth observable in Nature. But as this would in many cases produce monotony, we have a third quality to consult, namely, variety, which in Nature being endless, we have an inexhaustible source to draw upon. And very few colours are necessary to produce this multiplicity of changes. In the employment of them, however, we must always bear in mind the necessity of preserving the breadth of light and shade, (Art. 294,) and the balance and union of hot and cold colours." (Art. 306.)

* It was the method of Correggio, as was observed, to preserve his light and shade undisturbed by colour, and to use colour for heightening not impeding chiaroscuro: strong colour holds the place of middle tint, and is neither seen in the high light nor in the deep shade. If used as an intermediate link it will unite both, preserving at the same time a greater consequence and force. Whether it is to be warm or cold must depend upon the colour of the principal light of which it is to be considered an extension. See Note (E.)

† "Though to the principal group," says Reynolds, "a second

Painting. Grouping.

these lights may be varied at pleasure,* but they should generally be arranged in an irregular kind of triangle.†

(303.) That in a group, or assemblage of several figures, an odd number is preferred, as three, five, seven, &c. Among the even numbers, Mengs chooses the number two, and observes that two figures of unequal sizes are the least disagreeable to the eye: but that couples are always ungraceful. A group, he adds, looks best in the form of a pyramid, which for better relievo should assume at its base a somewhat rounded form. Its large masses should be disposed in the centre of the group, while its smaller members should be left as stragglers round its edge to give it lightness. If there are several groups or *pyramids*, he prefers for them also an odd number. He desires the principal figure to take his stand in the middle group. But if several figures of equal importance to the story occur, let them, he says, be all placed near the centre of the work, and in the middle ground, in order that by means of light and shadow they may receive relief and consequence from objects surrounding them. In general, he adds, let the group form itself in a semicirele, either concave or convex, in order to give its central and principal figure every advantage of relievo.* Of Composition.

(304.) That when numerous figures are introduced into a composition, there must be great variety of colour. Confusion may be prevented and unity preserved by repeating the same colour in different parts of the work. These colours, however, in their passage from high lights into deep shadow must have great varieties both in tint and tone, and thus opportunity is afforded to the ingenious composer for a chain of harmonious intervals.† Unity and variety to be preserved in the colours of a group.

(305.) That in order to confer distinction upon an object it must by some means be made to stand apart, and in a state of isolation, if we may so express ourselves, with regard to the objects which surround it in the picture. This is effected by *contrast*, which we may define to be an abrupt transition from one kind of outline to another totally different, or from bright light to deep shadow: or from one interval or tint or tone of colour to its opposite. Thus in the case of outline, one sitting figure being introduced into a group of standing figures, becomes remarkable, or *vice versâ*; or a figure is made conspicuous by an horizon at or near its feet; or in a group of figures who all, with the exception of one only, look steadfastly in the same direction, that one figure turning in an opposite direction becomes distinguished. Such is the form of the Saviour turning to his disciples in the "Pasce oves" of Raffaelle. The figure, too, of St. Peter kneeling, while it distinguishes that Apostle from his brethren, contributes to elevate the figure of Christ, and confer appropriate dignity. (Art. 279.) Two requisites for every object on canvass. 1. Its *distinctness* as an object separated from every other.

---

or third be added, and a second or third mass of light, care must be taken that these subordinate actions and lights, neither each in particular nor all together come into any degree of competition with the principal: they should merely make a part of that whole which would be imperfect without them." See *4th Discourse.*

* The relative position of the lights and darks in a picture determine its character. 1. If the extreme light and extreme dark be placed at opposite corners of the picture, with a diagonal line between them, this is an opportunity for the greatest breadth. 2. If the principal light be in the centre of the picture, it will have great brilliancy when in contact with a small portion of dark; but in this arrangement there is less opportunity than when the light is at one side for a large breadth of shadow. 3. If a mass or focus of shadow be placed in the centre, and light be carried round it by means (in landscape, for example) of sky, water, or light foreground, the picture is a converse of the preceding, with less opportunity for breadth of light, but with strong effect for the central mass of shadow. 4. If a mass of shadow be carried across the middle of a picture, opportunity for great breadth and for repose is afforded. To these observations it may be added, that whenever light is repeated for a union of the two sides of a picture, it should be a repetition of the same colour. Thus Cuyp, whose principal light is often yellow, carries it into the dark part of the picture by means of yellow drapery, a cow, a sheep, or a few touches to represent bright golden reflexes from polished objects.

† The largest or principal light in which the principal figure or subject must appear, should generally occupy about an eighth or even a fourth part of the picture, and should be situated not far from the centre of the canvass. When a multitude of small objects are introduced into a picture, or when the general arrangement consists of many figures, breadth of light and shade is impossible unless many of them are united together of the same strength, so as to form a mass of light or of dark. Salvator Rosa and Wouvermans adopted for this purpose the artifice of introducing two or three white horses, and Weeninx a swan. Nature, however, abounds with much more probable expedients.

The second or third light, occupying another eighth of the surface, should be bestowed upon the figures or objects of secondary importance; contributing nevertheless to the primary object of the picture. Accessory or subordinate objects are to be rendered visible by reflexion only. "The same rules," says Sir Joshua Reynolds, (in his Notes upon Du Fresnoy,) "which have been given in regard to the regulation of groups of figures, must be observed in regard to the grouping of lights; that there shall be a superiority of one over the rest, that they shall be separated and varied in their shapes, and that there should be at least three lights. The secondary lights ought for the sake of harmony and union to be of nearly equal brightness, though not of equal magnitude with the principal." Again he says, "We will suppose Titian's bunch of grapes placed so as to receive a broad light and shadow; here though each individual grape on the light side of the bunch has its light and shadow and reflection, yet altogether they make but one broad mass of light; the slightest sketch, therefore, will have a better effect where this breadth is preserved, than the most laborious finishing where this breadth is lost or neglected."

"From the time of Cimabue," says Mr. Craig, "to that of the great Raffaelle, the light and shadow of pictures was very little studied. The pictures of that period, however great in invention, composition, and drawing, were in their general appearance flat and uninteresting. The first principle which seems to have been perceived by the early Italian masters, was that a light is made lighter by being opposed to a dark; and for some time we find in their works a constant association of some portion of dark with every little bit of light, whatever be its place in the picture. Giorgione was perhaps the first who endeavoured to give simplicity to his pictures by the introduction of broad shadows and contracted lights. Some of his portraits are from this circumstance objects of the most gratifying contemplation. Titian, who imitated his fellow-student Giorgione, caught an idea of breadth from seeing his works, though he appears not to have understood the principle which produced them. The pictures of Titian have therefore great breadth of light and dark; but it is often very abrupt, and often scattered at random. Correggio was unquestionably the first Painter who made the success of his works to depend on light and shadow." *Lectures*, p. 154.

---

* Of a concave group (that is, having the concave of the semicircle towards the spectator) examples will be found in such pictures as West's "Death of Wolfe," or the lower group of "The Transfiguration" by Raffaelle. Of a convex group an example is seen in the assemblage of the Apostles at the upper part of the Cartoon of "Ananias." As light and shade determine the concavities or convexities of objects, without light and shade, the most intelligent outline would be but as a map or flat surface. If, for example, we take a bowl or cup, and examine the influence of light and shade upon it, we find in the shading of Nature those principles which artists have applied to many purposes in Painting. We perceive the near edge strongly defined by the light side coming in contact with the shadow, which becomes darker as it descends into the cup. We have also the dark side brought firmly off the light, thus exhibiting to us the simplest and most effective means of giving a true representation of its character.

† "A pale yellow," says Mr. Burnet, "may terminate in a deep brown, yet a chain of communication be kept up; or a pure white may find repose and union in a pure black; a bright red vibrate (to use a term in Music) through a chord terminating in the gentlest echo of such a colour," &c.

Painting.

The same principle of isolation may be pursued in the use of light and shadow.* The focus of light on any leading or primary object,† creates a contrast in proportion to the darkness of the adjacent objects. (Art. 283.)

Again, this power of relief by contrast may be obtained through the assistance of the local colours of objects. (Art. 284, No. 2 and 4.)

And further, an object may be isolated, and drawn out from others by the contrast of its warm colour with the coldness of those other surrounding objects. (Art. 284, No. 5. Also 296, 297, 299.) Thus the distance of a landscape is often of use in giving prominency to a portrait while a low horizon elevates and gives dignity to the figure. Also, when the general tone of a picture is warm with brownish shadows, blue drapery and cool black will have greater force. Of this, Paul Veronese and Rubens afford many examples. Claude has often profited by this opposition of colour. In light pictures, (Art. 294,) this opposition is extremely valuable to the artist, who may thus give relief and distinctness without injuring his breadth of light. He may place blues upon a warm ground, reds upon a cool ground, bright yellows upon cool grey, &c.‡

Of Composition.

2. Its consistency as harmonizing with the whole picture.

(306.) That a painted object in its opposition, for the sake of relief, to the other parts of a picture, although it is thus contrasted with the rest in some respects, must harmonize with them in others. As any object is rendered more conspicuous by contrast with its opposite, so it is rendered less and less prominent at every step of their near approach to similarity. This agreement may, like the opposition above mentioned, (Art. 305,) be effected variously. In outline, a repetition of the same lines in features, posture, or action, (Art. 264, 279,) conduces to a balance between the different members of a composition. Thus the regularity in the cartoon of "Ananias and Sapphira" is remarkable. On each side of the semicircle (Art. 303) in the lower group are several figures, no one of whom, except Ananias and Sapphira, performs an action that is not repeated, while the Apostles being elevated on a higher position, maintain, although diminished by distance, a commanding aspect in the picture; and with all of them likewise the lines of drapery and contour are repeated. An agreeable method also of doubling the lines in landscape is often produced, as in the works of Cuyp, Rubens, and Teniers, by placing the foreground figures, as well as the middle ground, the distance and the clouds all on one side of the composition in such a manner that each in relieving the other shall in some degree repeat its contour. The strong light and darks of figures in a landscape so composed tell with great force against a background of houses, trees, mountains, &c. and these again are prevented from being harsh, sharp, and cutting by mixing their edges with the clouds.*

Repetition, in chiaroscuro and in colour, tends likewise to the same effect with repetition of lines. A quantity of light taken from the bright side of a picture, and exchanged for a portion of dark from the side opposite conduces to a balance.† And in a similar manner, a

* Some artists maintain, and justly, that every *light*, however small, ought to have a focus, or one part lighter than another. As we find this to be a general law in Nature, there can be no safer ground to go upon. For the same reason we ought to have one portion of a *dark* more decided than the rest. If these two extremes are brought in contact, we make them assist each other, one becoming brighter and the other darker from the effect of contrast. If they are placed at the opposite sides of the picture, we have greater breadth and a more equal balance. (Art. 294, 295.) Let us take some head by Rembrandt for an example: we shall find the principal light or focus in the upper part of the face which he often surrounds, to render it more luminous, with a black bonnet or hat, and even this is kept of a cold tone that it may give more value to the complexion. The light is then allowed to spread downwards, and be repeated on the figure. He thus produces union, and gives his light the appearance of diffusing rays of the same hue with itself. If we follow him in the conduct of some of his larger compositions, we find the same principle adopted, whether they consist of many figures, such as the Hundred Guilder-print, or of few, as the small Nativity in the National Gallery; thus rendering the most complicated compositions subservient to the simplest principles of light and shade. A few experiments on a ground of middle tint with a pencil filled with white, and another dipped in black, will give the student an insight into all the changes capable of being produced on this principle. Sir Joshua informs us that when at Venice, he took a blank leaf of his pocket-book, and darkened it in the same gradation of light and shade as each picture before him, leaving the white paper untouched to represent light. After a few experiments with different blank leaves on different pictures, he found every paper blotted nearly alike. Their general practice appeared to be, to allow not above a quarter of the picture for the light, including in this both the principal and secondary lights; another quarter to be as dark as possible, and the remaining half kept in mezzotint or half shadow. Rubens appears to admit rather more light than a quarter; and Rembrandt much less, scarce an eighth.

† Rembrandt, in his early practice of art, attempted to represent flame by darkening every other part of the picture, but by this means his flame became the only distinguished actor on the scene, while living agents were but secondarily prominent. His next expedient, therefore, was, to conceal the source of light, and to throw its rays upon his principal personages, according to their importance in the picture. Accordingly, his picture of Christ raising the daughter of Jairus is a sublime example of this effect. In this composition, Rembrandt, by throwing his light upon a light object, has the advantage of making reflexes from it upon other adjacent objects. His shadows, caused by such reflexes, are sometimes, as in Nature, strongly defined; and for the sake of these shadows, we observe him often introducing such objects as will serve the purpose.

‡ Rembrandt, when his light is cool, makes his shadows warmer the darker they become. Rubens, whose style was grounded on the Venetian school, seems guided by the same opinion. "Begin," says Rubens, "by painting in your shadows lightly, taking care that no white is suffered to glide into them; it is the poison of a picture, except in the lights; if ever your shadows are corrupted by the introduction of this baneful colour, your colours will no longer be warm and transparent, but heavy and leady." Opie thus describes, in his Lectures, Correggio's management of chiaroscuro. "By classing his colours, and judiciously dividing them into few and large masses of bright and obscure, gently rounding off his light, and passing, by almost imperceptible degrees, through pellucid demitints and warm reflexions, into broad, deep, and transparent shade, he artfully connected the fiercest extremes of light and shadow, harmonized the most intense opposition of colours, and combined the greatest possible effect" (of contrast) "with the sweetest and softest repose imaginable."

* "Mark in strongly," says a judicious artist, "those points in the ground, which of necessity must be introduced from natural circumstances, at the same time contriving your group, so that those points become of the greatest consequence to the composition." A richness of effect is produced either by such a combination of light and shade as will give the appearance of doubling to the outline; or by relieving the outline by a ground possessed of a variety of strengths. A small portion of any group or figure, coming firmly and sharply off its ground, is quite sufficient to give the appearance of natural solidity to the whole.

† The arrangement of light and shade as relates to the *whole* of picture ought never to be absent from the student's mind. "If a diagonal line," says Mr. Burnet, "be drawn through the picture," (to divide a breadth of light from a breadth of dark.) (Art. 294.) "and a balance or union between the two sides be wished, there is no other way but by borrowing a portion of the one, and exchanging it for a portion of its opposite. Not only may this practice be made use of for the harmony of the whole, but the light and the shade will be thus rendered more intense by the force of opposition. Whether the dark which is carried to the light side be very small or

balance of warm and cold colouring may be effected.* As therefore contrast or isolation is brought about by abruptness, (Art. 306.) not only in placing a focus of extreme light near to extreme dark, but also in placing the repetition or focus of a cold colour among warm tones, or of a warm tone among the cold colours of a picture, so does this very act of repetition generate at the same time a bond of union and a balance of power throughout a composition between the properties of light and warmth on the one hand, opposed to those of darkness and coldness on the other.†

Again, as the opposite to abruptness is insensible gradation, so when two opposing tones or tints have a harsh effect in juxtaposition, their harshness may be reduced by intermediate tones or tints, (Art. 284, No. 4, 5,) so as to produce a gradual and delicate succession of harmonious intervals. (Art. 298.) Or, between two colours of which the tones antagonize; between, for example, two primitives, as red and yellow, the disagreement may be in some measure abated by making each of nearly the same tint or degree of strength. Thus, the blue, No. 13, (plate xi. fig. 5,) will be found to have less hostility to yellow, No. 7, if they be both taken from the same tint, that is both taken from the circumference of the same circle, and have both of them two, or four, or six, &c. degrees of strength.

Lastly, any excess (in form, in light and shade, or in colouring) which has been unduly given to one object over another may be reduced by the introduction of a third object, which, acting as a foil to both, and showing a much greater excess, makes the difference between the two former objects less open to observation. Thus in outline, the difference between any curve or straight line, or between any two curves, may be made scarcely perceivable by introducing a third line which has a degree of curvature considerably greater. Also a line very slightly curved may appear formal and lifeless, (Art. 264,) till a line exactly straight is placed near it. Again, in chiaroscuro, the interval between a light and a shadow or between any two shadows may be made to appear considerably smaller by the juxtaposition of a third shadow of extreme and intense darkness.‡ Also, in colouring, the interval between any two tints is apparently reduced, and the gradation consequently made more soft and more harmonious by a third tint in contact with them, which differs more in tone from either than they do from each other.* Correggio and Rembrandt frequently relieved the dark side of their figures by a still darker background.

(307.) That respecting the materials which are to be put into operation for Painting, the artist can acquire little from any written description, but must perfectly acquaint himself by practice alone with the peculiarities (as well defects as excellences) of whatever vehicle he uses. We shall, therefore, only here remark, in conclusion, that the foregoing rules apply equally to all the different vehicles and materials adopted in this Art: whether *oil colours*, which from their great power of expressing with perfect clearness the deepest gradations of shadow, have been generally held in highest estimation; or *water-colours*, which in this Country have been raised to almost equal power, and brought to a perfection never before known; or, thirdly, *crayon* Painting by means of coloured chalks; or, fourthly, *fresco* Painting, (so called from being performed on *fresh* plaster,) which from its unrivalled brilliancy of effect, and its connection with Architecture, was the favourite of the early Schools in Italy. To these several vehicles may be added *Mosaic*, or the beautiful as well as durable representation of Nature by small pieces of variously coloured marble; *inlaying*, or a somewhat similar operation in wood; *enamel*, or the process, on copper or gold, of Painting with mineral colours dried and melted in by fire; together with contrivances by means of wax, called *encaustic* Painting; or by *staining glass*, an Art allied to enamelling; not to mention the successful competition of the loom with the easel, in the still more ancient devices of *tapestry* and embroidery. These several materials for pictorial effect may be compared to the several instruments used in Music, all vibrating in separate ways, under distinct and separate forms, and by impulses suited to each; all of them diversified in their modes of operation, but all subservient to one system, and all combining to answer by different means the peculiar ends and purposes of the Art which employs them.

---

very large, or *vice versâ*, we have here the groundwork of some of the most powerful and most natural effects in Painting." *On Light and Shade*, p. 6.

* "If a diagonal line," says the same Writer, "be drawn across the picture," (he alludes to the Bacchus and Ariadne of Titian,) "we find it composed of a mass of hot and a mass of cold colour, laid out upon the broadest scale, and aiding each other by the opposition." The greatest breadth, indeed, is (Art. 294) to be preserved in colouring by a division of the picture into hot and cold colours. The contrast of warm hues with cold increases their richness, the aerial perspective is improved, and the foreground figures receive solidity without the help of black shadows. "That a picture," observes the author just quoted, "should consist of hot and cold colours, is as indispensable, as that it should have light and shade. Which shall form the light, and which the shade, is entirely at the option of the artist. It is, however, necessary that these colours should occupy separate places in the balance of chiaroscuro, and that by any exchange of portions from the side warmth into that of cold, both extremes of the work may be harmoniously united.

† It frequently happens, that only one light appears in a single head. This must be made to harmonize with the shadow either in the background, or in the dress. Rembrandt, for this purpose, painted the light of the dress the same colour as the shadowed side of the face.

‡ The dark forming the greatest mass of shadow in a picture is often, before being brought into contact with extreme light, increased and collected to a point by some object whose local colour conduces to that purpose. Thus the black portion of a female's dress (in a Painting by Metzu, as described by Mr. Burnet) is brought, at its darkest part, in contact with the brightest portion of her white dress. This gives air to the deepest shades of the background, as well as greater firmness to the object so relieved.

* Any colour may in its tone so nearly resemble a primitive, as to be mistaken for it, until the introduction or juxtaposition of that primitive. Thus a green may be so nearly blue as to appear so till blue is present; or so nearly yellow, as to be taken for that primitive till yellow is present. As the repetition of a colour in various parts of a picture diffuses the light, and gives breadth of effect, so also repetition destroys proportionally, at the same time, the power of that repeated hue to give singularity and prominency to the object which it colours. A colour, therefore, will be often seen, in the best Masters, not only *single*, but surrounded by others totally different in tone, in order to increase its value. This peculiarity of colour is of the utmost use as to bringing out such points as the artist wishes to draw attention to. Not only does he thus obtain for that one colour the greatest force that his palette can give it, but he often brings all the rest into better agreement with one another.

Notes on Painting.

Note (A.)

The principles for drawing the boundaries of the shadow of any surface may be contained in the three problems which we here subjoin, and of which the mathematical reader will find the elements very succinctly stated in the fourth section of Creswell's Perspective. We will endeavour to state them in the most popular terms we can devise. Some previous definitions, however, may be necessary.

Definitions for Aerial Perspective.

Def. 1. Right lines drawn from a luminous point to any point in the illumined object are called lines of rays, and a plane containing any two such lines is called a plane of rays.

2. Rays that come from self-luminous bodies (Optics, Art. 4) upon other bodies non-luminous, we term primitive (or direct) rays. (Optics, Art. 54.)

3. Rays from bodies not self-luminous, but that have received primitive rays, are called derivative, or borrowed rays, or reflexes. (See Da Vinci, *Trattato della Pittura*, cap. 75—87.)

4. An infinite multitude of rays (borrowed or primitive) from any luminous body, being intercepted in their course by some opaque body; a certain number will be either absorbed or reflected. Between this intercepted number and the remaining unimpeded rays will be the boundary between light and shadow, which we will term the limiting surface, or column of shadow.

5. Direct rays from the sun or moon, are termed parallel rays, and will be represented by parallel lines.

6. Direct rays from small self-luminous bodies, sufficiently near to the object which they illumine, are termed diverging rays, and will be represented by right lines *diversely* spreading or diverging from the luminous point. (Optics, Art. 136.)

7. Where two or more luminous bodies have their rays intercepted by the same opaque body, the respective limiting surfaces or columns of shadow will intersect each other. The space included between the planes or surfaces of intersection is styled *dark* shadow. The remainder, from its lesser degree of intensity, is called *penumbra*, or *half* shadow. (Optics, Art. 34—36. Da Vinci, cap. 26.) Thus if we suppose a strong light to proceed from two bright clouds at B and D, (plate xii. fig. 1,) in front of the spectator, and suppose also through another bright cloud the sun near the horizon over the spectator's left shoulder, with its rays vanishing at V, there will be three shadows, *viz.* the shadow *a s p o n i*, caused by the interception of the sun's light; the shadow *e l m r b c*; and the shadow *e u t w q c*, caused by the interception of light from D and B. Where any two of these columns of shadow intersect each other, there will be a deeper shade in proportion to the brightness of the intercepted light. And where all three of them intersect, as in the area *a b c*, the shadow will be darkest. But this kind of effect is seldom so distinguishable out of doors. It is most visible, and most common in interior, or in in-door subjects, where the innumerable changes and modifications of window-light, candle-light, lamp-light, and fire-light, with their reflexes, cause inexhaustible varieties in the position and intensity, as well as colour of shadows.

8. If from any given point a perpendicular line be drawn to any plane, the point of contact where the perpendicular meets the plane is called the *seat* of the given point. Thus the seat of a candle on a wall or table is found in the point of contact, where a perpendicular from the centre of the light meets the wall or table. Also, the seat of any point in an object casting a shadow is found on the plane which receives the shadow, at the end of a perpendicular line from that point. For example, the point S^2, (plate x. fig. 3,) at the extremity of the perpendicular L S^2 to the plane *r w*, is the seat of the point L, as S is the seat of the same point L on the horizontal ground or plane S G F. So also S (fig. 4) is the seat of the light on the horizontal plane or ground; *a* the seat of *b*; *d* the seat of *c*; and *e* the seat of *o*. Again, the point *p* (plate xii. fig 5) is the seat of the plumb line, and the point *a*, where the representation of a perpendicular meets a plane, is the seat on that plane of the point *b*, or of any other point in the direction of *a b*, produced to any length. Remark also A (plate xii. fig. 1) the seat of T.

9. A plane perpendicular to the horizon, and which in its vanishing line contains the vanishing point of the sun's rays, is called the *plane of altitude*. Thus the plane E A T (plate xii. fig. 1) is a plane of altitude vanishing in D O, which contains the vanishing point D of the ray E T, and its parallels. Thus also the plane I A T is a plane of altitude vanishing in B R where B is the vanishing point of the ray I T. In these examples, the sun's place is at B and D in front of the spectator. Again, U A T is a plane of altitude vanishing in M H, which contains M, the vanishing point of the ray T U, which comes from behind the spectator. Also, A T C is a plane of altitude vanishing in V L, which contains V, the vanishing point of the ray T C. Observe that T E A, T I A, T U A, and T C A, represent the respective angles of the sun's altitude.

Notes on Painting.

But the plane of altitude has no vanishing line when the sun is in the plane of the picture, and has, consequently, his rays all parallel to that plane, and without any vanishing point. (Art. 36.) In this case, any plane parallel to the plane of the picture will be a plane of altitude. Thus the angle L T A, being the angle (plate xii. fig. 4) of the sun's altitude, the plane A L T is a plane of altitude, since it contains the ray L T, and as many parallels to L T as can be drawn crossing T A and L A.

10. The point where the vanishing line of the plane of altitude cuts the horizontal line is called the vanishing point of *horizontal* intersection. Thus the points H, R, O, and L, (plate xii. fig. 1,) the points *c*, *a*, and *b*, (fig. 2,) and the point L, (fig. 5,) are the vanishing points of the intersection of the plane of altitude with the plane of the horizon. (Art. 145, 189.)

11. The point where the vanishing line of the plane of altitude is intersected by the vanishing line of any plane containing any line or lines of solar rays, is called the vanishing point of *altitudinal* intersection. This point is, in fact, the vanishing point of the sun's rays. Through this point must pass the vanishing line of whatever plane contains lines of solar or lunar rays. For example, the points B, D, M, and V, (plate xii. fig. 1,) and the points M, N, O, P, Q, and R, (fig 2,) and the point V, (fig. 5,) are vanishing points of altitudinal intersection. And if in the plane D *l m*, (fig. 1,) containing the rays D *l* and D *m*, the line *m l* be prolonged till it meets at its vanishing point P, the vanishing line H L of its plane; next, if P D be joined, the line P D will be the vanishing line of the plane D L N, and must pass through D. In the same manner, *m r* may be prolonged to show the vanishing line of the plane *m* D *r*, and *r b* to show the vanishing line of *r* D *b*, &c.

Problem I. *To find on any plane receiving a shadow the seat* (Def. 8) *of any given point situated out of that plane.* Prob. I.

The given point must be considered as belonging to some plane, as L S *v* S^2, (plate x. fig. 3,) making an angle with the given plane.

1. If the angle so made be a right angle, let the given plane be S *v* G F, or *r v x w*, both perpendicular to the plane L S *v* S^2.

First, find the line of intersection, as *v* S, or *v* S^2, (Art. 141, 187,) which the plane containing the given point L makes with the plane receiving the shadow. To that intersection draw from L (the given point) a perpendicular L S, or L S^2. The extremity S of that perpendicular will be the seat of L on the plane S *v* G F; and S^2 (the extremity of the perpendicular L S^2) the seat of L on the plain *r v x w*. In the same manner is found *t*, the seat of a given point *g* that belongs to the plane *g o m t*, making right angles with *r v x w*; also (on the plane S *v* G F) *n*, the seat of *e* or *f*; *p*, the seat of *d* or *c*; *z*, the seat of *a*; and *o*, the seat of *h* or *g*.

When these two planes making right angles with each other are *inclined* to the picture, as the plane *c a d e*, (plate xii. fig. 3,) at right angles with the plane *a* I *o b*, (supposed to receive the shadow,) their vanishing lines must be found, in order to determine H the vanishing point of their intersection *a b*. (Art. 145.) Then find the vanishing point of all perpendiculars (Art. 196) to the plane (here supposed to be *c a d e*) receiving the shadow. If that vanishing point be W, and L be the point given, a line from L to W will cut the intersection *b* H in *b*, the required seat of L; in the same manner as *b a* (fig. 5) cuts the intersection *c a*, and determines *a* for the seat of *b* on the plane receiving its shadow.

2. But if the angle made by the two planes with each other be not a right angle, let the given point be O (fig. 3) in the plane *a* I O *b*. In this case the intersections of both planes with the plane of measure (Art. 145, 146, 182) must be found; viz. O D, (which must be drawn through the given point O,) the intersection of the plane *a* I O *b*, and S M, (in the plane *c a d e*,) the intersection of the plane of measure with *c a d e*. Find W, the vanishing point of all perpendiculars, (Art. 196,) to the plane *c a d e*. Join O W. The point *x*, where this representation of the perpendicular cuts S M, is the required seat of O upon the plane *c a d e*. In the same manner *z* will be found on the same plane to be the seat of a point K in the plane K *a*.

Problem II. *Given the representation of any finite straight line, to represent its shadow caused by rays diverging* (Def. 6) *from a given luminous point.* Prob. II.

Find the seat (Def. 8, and Prob. I.) of the light and the seat of the points at each extremity of the given straight line. Supposing the given line to be *a c*, (plate x. fig. 3,) the seat of *a* will be *z*, and the seat of *c* will be *p*. Then connect by other straight lines the seat S of the light with the seats *z* and *p* of the two extremities of the given straight line. Prolong these two connecting lines S *z* and S *p* till

Notes on Painting.

they meet at A and C the two rays L *a* A and L *c* C, drawn from the light through the two extremities *a* and *c* of the given straight line *a c*. The points A and C of this meeting or intersection will represent the shadows of those extremities, and a straight line A C between them will represent the shadow of the given line *a c*.

In the same manner we find G^2 the shadow of the point *g* cast on the plane *r v x w*, having first determined the seats S^2 and *t* (Prob. I.) on that plane. The line $S^2 G^2$, intersected by the ray L G, gives the shadow G^2 of *g*. Thus also the respective shadows of *e*, *f*, and *h*, as well as of *b* and *d*, are found to be E, F, and H, B and D. So likewise the rays L *h*, (fig. 4,) L *g*, and L *f*, determine the respective shadows of *b*, *c*, and *o*, by the prolongation of S *o*, S *d*, and S *e*, to *h*, *g*, and *f*.

Cor. 1. To determine any shadow intercepted by any opaque surface, find in all cases the several points where the respective rays from the primitive or reflected light meet the intercepting surface. Thus, as we have seen, at the point G^2 the ray L G is intercepted by the plane *r v x w*. And in a similar manner, the circular rim of the candlestick (fig. 4) may have its shadow determined on the cylindrical surface of the pillar, as well as on the book *b c d a*. Let a line through S, parallel to the vanishing line of its plane, (Art. 21, 64,) be drawn, and another parallel line for a diameter of the rim. Rays L *v* and L *w* drawn from L through the extremities of this diameter will determine *v w*, that of the shadow on the plane beneath. Next, (taking C for the centre of the picture,) complete the representation of the circle round S. (Art. 178—181.) Or, if the rim be of any other form, find the seats round S of the most remarkable points, and then the shadows, according to the process above detailed. Any number of radii from S, as S *x* and S *r*, will cut the circumference of the pillar, as at *m* and *u*. Draw through *m* and *u* lines parallel to the axis of the cylinder. These lines will cut the rays L *x* and L *r* in the points *n* and *t*. And in the same manner may be found any number of points required for completing the shadow on the cylindrical surface. The same process is applicable to a concave or interior surface of a cylinder, as also to the plane surface of the book *b c d*.

Cor. 2. Observe that the same methods are available for determining and circumscribing any portion of light, as we have adopted for portions of shadow. If, instead of the rim of the candlestick, a round hole in some opaque plane parallel to the plane at S were placed under the light; the same arrangement of lines would give the delineation of a circular illuminated portion of the plane below, and of its interception on the pillar, &c. So on the other hand, the four-sided figure c *b d a* (fig. 3) might be an opaque surface, and then its shadow would be C B D A.

Prob. III. PROBLEM III. *Given the sun's altitude and the angle, if any, made by the plane of altitude* (Def. 9) *with the perspective plane to represent the shadow of any given point of which the seat* (Def. 8, and Prob. I.) *has been determined, or the shadow of any line of which the vanishing point is known.*

Our expression "if any," alludes to the sun's rays when parallel to the picture, in which case the plane of altitude can have no vanishing line. (Art. 67.) The last problem referred especially to divergent rays. (Def. 6.) The present refers only to shadows caused by the interception of parallel rays. A few previous observations may assist the learner.

Obs. 1. That the rays of the sun, on account of their distance, are reckoned as being parallel to each other. Let the reader, however, consult OPTICS, p. 415. sec. 39—43 for a general law. If a light be smaller than the enlightened object, the shadow diverges; if equal to it, the shadow will be of the same magnitude; if larger, the shadow will be smaller and less diffused.

Obs. 2. That if any original straight line (Art. 16) be parallel in sunlight to the plane which receives its shadow, the original shadow of that line upon the plane will be parallel to the line itself. Consequently, the representation of the shadow of that line will pass through the vanishing point of the original line. Thus, R K and T P (plate xii. fig 4) being parallel to the plane H *w* c, the shadows *h k* and *s p* will be represented parallel to R K and T P. And thus *g f* (fig. 1) being parallel to the ground plane, (Art. 41, and note to Art. 17.) the shadow *w q* of *g f* will vanish with *g f* in the same point B. (Art. 76.) Also *e d* (fig. 5) will be parallel to E D.

Obs. 3. That if the shadow of a body in sunshine be received on a plane inclined to the ground plane, or be received on any surface whatever, the column of air darkened by the obstructing body (Def. 4) must first be determined. After this, the intersection of the representation of the inclined plane or other surface with the column will represent the boundaries of the shadow.

Obs. 4. That a shadow cast on a plane perpendicular to the sun's rays is composed of the seats on that plane (Def. 8) of all the points in the body or object which casts the shadow.

Thus if L A (fig. 4) be the direction of the sun's rays perpendicular to a plane containing T A, and the shadow of T L be required, T A will be that shadow, composed of all the seats of all the points in T L. So also, if T A (fig. 1) be the direction of the solar beams; E A will be the shadow of E T; U A of U T; I A of I T; and C A of C T; and the house at O will have no shadow.

Notes on Painting.

Obs. 5. That shadows cast on a plane to which the rays are parallel will be interminable. In such a case the lines of direction for the shadows have, when not parallel to the picture, the same vanishing point with the rays. (Art. 76.)

Obs. 6. That in all shadows two things are to be considered: the *direction* of the shadow, and its *length*. The length is determined by lines of rays drawn to meet the lines of direction. Thus, if A T (fig. 4) be the line of direction for the shadow of A L, a ray L T through L will give the shadow of L at T. Or if A E, (fig. 1,) A U, A C, or A I, be the line of direction, the shadow of A T, the ray T E, or T U, or T C, or T I, may determine the points E, U, &c. Secondly, the *direction* of shadows is found by the intersection of the plane receiving the shadow with the plane of rays that contains the line casting the shadow. Thus A T (fig. 4) is the intersection of the ground plane with the plane of rays A L T. In like manner A E, (fig. 1,) A U, A C, and A I, are similar intersections on the ground plane made by their respective planes of rays.

Obs. 7. That the several planes containing the sun's rays may be classed according to the three cases mentioned in Art. 34. Either these planes of rays will be *parallel*, or *perpendicular*, or *inclined* to the perspective plane. Let the student, placing himself in the sunshine, remark in what direction his own shadow falls. Suppose him standing with the point S (fig. 2) between his feet and the vertical line S V passing through his eye at *e*. Either this plane of altitude containing the vertical line S V may be parallel to the picture, or it may be perpendicular, as V D P *o* S; or it may be inclined, as are V R Q C, and V M N E.

Obs. 8. That if the luminary be in the zenith, emitting vertical rays parallel to V S, it is evident that all the planes of rays will be parallel to the plane of the picture. The man's shadow on a horizontal plane beneath will be no other than a horizontal section (see Obs. 4) of the thickest part of his person. All lines of rays on the picture must here be parallel to P *o*. But imagine the sun (still in this parallel plane) to be in the horizon as at sunrise or sunset. The lines of rays now will be parallel to H L in a direction towards the spectator's right or left hand. Shadows cast on planes parallel to the station plane will now be sections of the shadowing object, (Obs. 4.) while shadows cast on the ground plane or its parallels will be interminable. (Obs. 5.)

Obs 9. That when the sun's rays are parallel to the perspective plane, in other words, when the sun is in the plane of the picture, (fig. 4,) the shadows of all lines parallel to the picture will be parallel to the vanishing line or base of whatever plane they are cast upon. Thus T *s*, the shadow of a portion of T P, is parallel to H D; *s p*, the shadow of the remainder of T P, is parallel to S D. So also R *h*, and *h k*, shadows of K R, are parallel to the vanishing lines of their respective planes. And on the roof vanishing in W D, the shadows *e n*, *o u*, and *i j*, of lines parallel to the picture, are represented parallel to W D.

Sun's rays parallel to the picture.

It will be now proper to apply Problem III. to the representation of shadows when the sun's rays are *parallel* to the plane of the picture.

Given then the angle A T L (fig. 4) of the sun's altitude and a point L, to find the shadow of the point L. Find its seat (Def. 8, and Prob. I.) at A. Draw through the seat A the intersection A T of the plane of the rays with the ground plane, the latter being the plane which here receives the shadow. (Art. 141, No. 1.) This gives the *direction* (Obs. 6) of the shadow. Lastly, through the given point L draw a line parallel to the given rays. Produce this line (L T) till it cuts at T the line of direction. T is the shadow of A. Thus may be found the shadow of any other point having A for its seat. In like manner *z* the seat of Y being found on the plane H *d c s*, to find the shadow of Y draw the vanishing line S D of the plane receiving the shadow. (Obs 6.) Through H, the vanishing point of the perpendicular Y *z*, draw a ray H S parallel to L T, *i. e.* making at H the angle D H S of altitude. H S will be the vanishing line of the plane of rays containing Y *z*, (Art. 31,) and of all other parallel planes of rays. (Art. 65.) Next, from the vanishing point S of the intersection of this plane with the plane H *d c s* draw S *y* through *z*. A ray parallel to L T through Y will now give *y* for the shadow of Y at the point where Y *y* meets S *y*.

Cor. 1. Thus may be shown that the shadows of the parallels vanishing in H will be lines vanishing in S.

Or the point of shadow *y* may be found by finding the shadow R *w* on the ground plane of a line K R containing Y. Where that shadow is cut at *h* by the plane H *d c s*, change its direction to *h k*. (Obs. 2.) The ray V *y* from Y will cut *h k* in the point *y* required. This latter method is sometimes the more convenient of the two.

Notes on Painting.

When, for instance, the shadow changes to a new plane *d a b c*, where *i j*, *o u*, and *e n*, to show the direction of the shadow, are drawn through the points *j*, *u*, and *n*, parallel to W D; (Obs. 9;) instead of drawing *i x*, or *e x* from *x* the intersecting point of H S with W D, (Art. 145,) let rays O *o*, I *i*, E *e*, parallel to S H or L T, be drawn through I, O, and E. These will give *i* for the shadow of I; *o* for that of O, &c.

Obs. 10. We have now seen that the representations of the shadows of lines parallel to V S, (fig. 2,) or parallel to the picture, will be parallel to the bases of whatever plane receives them. (Obs. 9.) Thus represented on a horizontal plane, they would be parallel to H L; on a plane vanishing in P *o*, they would be parallel to P *o*; on a plane vanishing in R Q they would be parallel to R Q, &c.

rpendicu-r.

Let us next observe that if the rays be *perpendicular* to the picture, the line V S will be in the station plane. (Art. 17.) The spectater, for example, with the sun just above the horizon, shining directly at his back, (and in the station plane,) and giving rays parallel to A *a*, will see his shadow along the line S *o*, in a direction parallel as before (Obs. 8) to the solar beams. The lines, therefore, both of the spectator's shadow, and of all other horizontal shadows, will vanish, together with the lines of the rays, at *a*, the centre of the vanishing line of the plane to the base of which they are perpendicular, (Art. 72,) namely, in the centre of the picture. (Art. 73.) The lines of shadow, however, will in this case be interminable, (Obs. 5,) since the sun has no altitude. But suppose the sun to continue behind the spectater and in the station plane, and to be raised above the horizon so as to make the angle of altitude A *e f*; the plane of altitude (or in this case station plane) will still vanish in the line P *a o*, (Art. 70,) but the vanishing point of the lines of rays will no longer be the same with that of the horizontal lines of shadow at *a*. The altitudinal intersection (Def. 11) will now vanish at *d*; while the horizontal (Def. 10) continues to vanish at *a* as before. Horizontal lines of shadows (as well as all others not parallel to *f d*, Obs. 5) will no longer be interminable. They will be defined and determined by the lines of rays vanishing in *d*.

Suppose now the sun directly in front of the spectator with rays again parallel to A *a*, and vanishing in *a*. The line of horizontal shadow S *p* will again be interminable in an opposite direction. But if the luminary rise to D (still in the station plane) the ray D *p*, vanishing at P, will cut and define the spectator's horizontal shadow at the point *p*; and D *p o*, or P *e a* will be the angle of altitude.

Obs. 11. The phenomena caused by planes of rays *inclined* to the picture come lastly to be considered. When the sun is in the horizon, similar appearances to those we have noticed (Obs. 9 and 10) will take place. The lines of shadows, and the lines of rays will vanish together at the same point, suppose *b* or *c*. If the luminary, with rays vanishing in *b*, for example, be *behind* the spectator, his shadow will take the direction S *t*. If the rays come *towards* him, his shadow will take the direction S F; and will in either of these two cases be interminable. (Obs. 5.) But suppose the sun's altitude over the spectator's left shoulder to be C *y* F = *b e* Q, and graduated on *b* Q at Q; and let C R Q be the plane of altitude vanishing in R Q. The interminable shadow in the direction S *t* will now be cut short at *y* by the ray C *y* vanishing at Q. Change the sun's place again, and suppose the altitude to be R *e b* in front of the spectator, and a little to his right; the ray R F vanishing at R will determine S F for the horizontal shadow of S *e*. The plane of altitude (Def. 9) will be R *e* Q vanishing in R Q, but having the vanishing point of altitudinal intersection (Def. 11) above the horizontal line at R instead of below it, as before, at Q.

The student may apply this observation to similar phenomena when the sun is in any other plane of altitude, as for example, the plane E M N vanishing in the line M N. In this example the rays either proceed from behind the spectator, and pass over his right shoulder to vanish in N, or they vanish at M not quite in front of him, and towards his left hand.

clined.

We are now prepared for the application of Problem III. to the representation of shadows caused by planes of rays *inclined* to the picture.

Draw the horizontal line H L, (fig. 1, or 2,) and at C, the centre of the picture, raise either above or below H L a perpendicular equal to the principal distance. (Art. 22, 28.) At X, (fig. 1,) its further extremity, let an angle be made with C X equal to the complement of the given angle made by the plane of altitude.

Obs. 12. The question now is, on which side of C X to make the angle; towards C L, or towards C H. The place of the sun decides the question. If the sun be behind the spectator, and if the plane of altitude (suppose C R *t* F, fig. 2) take the direction F *t* or C Q over his *left* shoulder, then the angle (which must equal *o* S *t*) will be made to the right of *a*, (fig. 2,) or of C. (Fig. 1.) If from behind, over his *right* shoulder, in the direction S *i*, (fig. 1,) the angle *i* S *o* must be made to the left of *a*, or C, the centre of the figure. But when the sun shines towards the spectator's face as from B or D, (fig. 1,) or from M, (fig. 2,) or R the angle at X (fig 1) must be made on the same side of C X with the sun.

Notes on Painting.

Prolong now the line making at X the complement of the given angle. The point where that line meets H L will be the centre, as R of the vanishing line B R of the plane, making the given angle, *viz.* the plane of altitude. On either side of that centre, as R, raise a perpendicular, as R *x*, to its vanishing line B R, equal to the direct distance as R X, (Art. 131,) and at the further extremity *x* of this perpendicular, construct the given angle B *x* R of the sun's altitude. Construct it above H L, if the sun shines towards the eye or face of the spectator; below, if shining at his back. (Obs. 11.) In this manner are found the vanishing points H, R, O, L, (fig. 1,) *c* and *b*, (fig. 2,) and L, (fig. 5,) vanishing points of horizontal intersection. (Def. 10.) Thus also the points M, B, D, V, (fig. 1,) N, M, R, Q, (fig. 2,) and V, (fig. 5,) vanishing points of altitudinal intersection. (Def. 11.)

Obs. 13. When, however, the plane receiving the shadow is not a horizontal plane, its vanishing line must be found, and the point where that vanishing line cuts B R, (fig 1,) or the vanishing line of the plane of altitude, is to be the point for showing the *direction* of the shadow, and to be used as the points H, R, O, L, &c. of horizontal intersection would be, if the receiving plane were horizontal.

Thus, in the vanishing line of the plane of altitude the two points, as B and R, (fig. 1,) being found, let now T be the given point in Prob. III. of which the shadow is to be represented: say, on the ground plane. Find A its seat. (Prob. I.) Through A its seat, and from the vanishing point R of horizontal intersection (that is from the point where the two vanishing lines, (Obs. 13, and Art. 145,) that of the plane of altitude, and that of the plane receiving the shadow, cross each other) draw the line of direction, say R I. I is the required representation of the shadow of the given point T.

By the same method are found, under any other aspect of the sun, other shadows of T, as E, U, &c. In this manner also, the four shadows of the house (fig. 1) are constructed, by ascertaining first the shadows of the points *d*, *h*, *g*, *f*, *h*, *j*; and then drawing lines *l m*, *m r*, &c. for the limits of a column of shadow intercepted by the ground plane.

Cor. 2. Any horizontal plane is a plane of measure for the angle made by the plane of altitude with the plane of the picture. (Compare Art. 142, 151, 152, 187.)

To find, lastly, the shadow of any line of which the vanishing point is known.

Let the given line be *k d*. (Fig. 1.) Find the shadow *l* of some point, as *d*, in the given line. Prolong *k d* to its given vanishing point at *y*. Join *y* with the vanishing point, say D of the sun's rays, (*viz.* of altitudinal intersection,) *y* D will be the vanishing line of a plane of rays containing the given line K *d*. Remark where *y* D crosses the vanishing line of the *plane which receives the shadow*; *viz.* in this example, at P. Draw from P the intersection *l m* of the plane of rays *m l d k*. A ray from D through *k* will determine *m l* for the shadow of *k d* required. (Def. 11.)

Obs. 14. We have yet to remark upon the method of constructing shadows for Prob. III. when either the line casting the shadow is parallel to the picture, or the plane receiving it is parallel to the picture.

In the former case when the given line and the given plane are parallel to each other, the direction of the shadow has been noticed. (See Obs. 2.) Where, however, the given line and the given plane are not parallel to each other, and the given line is parallel to the picture, prolong the vanishing line of the given plane till it meets that of the plane of altitude. The point of their contact is the vanishing point of the line of direction (Obs. 6) for the shadow. Thus, L (fig. 5) is the vanishing point of the shadow P *r* of part of the line P N, the latter line being parallel to the picture. When the direction changes to another plane, (a given plane vanishing in A B,) prolong A B till it meets L V, and again from the point where these two vanishing lines meet, draw *t m*, for the new direction of the shadow. Suppose, further, another plane vanishing in H O, to receive the remainder of the shadow of P N. Prolong H O to meet V L, and draw from *m* to their common point of contact the line *m n*, of which the length is determined by (Obs. 6) the ray V N.

Obs. 15. When the given plane receiving the shadow is parallel to the picture, and the given line which casts the shadow is not parallel to the picture, prolong the given line to its vanishing point; and join that point to the vanishing point of the sun's rays. Thus will be found the vanishing line (Art. 31) of a plane of rays containing the given line; and the direction of the required shadow will be parallel to the line so found. For example, prolong N *z* (of which the shadow is required on a plane parallel to the picture) to its vanishing point C. Find *z*, its point of contact with the given

Notes on Painting.

plane (Art. 43, *et seq.*) Join V C. (Art. 31.) A parallel *z y*, to V C, or V W, (*viz.* to the vanishing line of a plane of rays containing N *z*,) will be the direction (Obs. 6) of the shadow of N *z*. Another example is the line *w v*, vanishing on the line A B, somewhere between H and B. Join its vanishing point to V, (Art. 31,) and draw *v u*, parallel to the vanishing line so found, of a plane of rays containing the given line *v w*. Lastly, *v u*, determined by the ray V *w*, (Obs. 6,) will be the shadow of *v w*.

Fig. 5 further exemplifies Prob. III. by the representation of the shadows thrown upon three successive planes from the divisions of a window frame. First, upon the ground plane; the shadows of *i l*, *g h*, &c. perpendicular to the picture vanish with the lines themselves in the centre C of the picture, (Obs. 2,) and have their lengths (Obs. 6) determined by rays V *i*, V *l*, V *g*, V *h*; while the parallels to the picture in the direction *i g*, *l h*, &c. have their shadows vanishing in L. (Obs. 14.) Secondly, on the plane that vanishes in A B the shadows of parallels to *i l*, and *g h*, vanish at the point where V W, the vanishing line of their plane of rays, (Def. 1,) cuts A B, the vanishing line of the plane receiving their shadow. (Obs. 14.) Thirdly, on the plane in the distance, parallel to the picture, the shadow of the line *l h* at *o*, will be parallel to the line itself. (Obs. 2 and 14.)

Other examples are given in the foreground of fig. 5 which seem to require no further observation here, and which the student, after the rules above given, may work out for himself, with the exception, perhaps, of the following. The shadow of a plumb line is cast upon a cylinder. Find *p*, the seat of any point in the plumb line on the ground plane. (Prob. I.) Draw *p* L and *x j* for the shadows of the plumb line on the ground plane and on a plane vanishing in A B. (Obs. 14.) Construct a circular section of the cylinder perpendicular to the ground plane. Divide the section by a diameter representing a parallel to the ground plane, and also by perpendiculars crossing it between *q* and *s*. Draw *q* H, *s* H, and between them draw the representations of any number of parallels crossing *p x*. At the points where they cross *p x* raise perpendiculars; as also between *q* and *s* on *q s*. Let these perpendiculars meet a like number of parallels to *s* H on the upper surface of the cylinder. The points thus found above *p x* will show the curve formed by the shadow of the plumb line.

Note (B.)

The science of reflections has reference to three particulars. 1. the reflecting surface. 2. The object to be reflected. 3. The reflected image of the object. Respecting the first of these particulars, we have only space for some observations concerning polished *plane* surfaces. Respecting the other two particulars we shall treat of them as likewise forming portions of planes.

Obs. 16. The three planes thus distinguished will have a common line of intersection, *e a* (plate x. fig. 5) or *b a*. (Plate xii. fig. 3.)

1. The reflecting plane, as *c d e*. (Fig. 2.)

2. The plane that contains the object to be reflected, as *a* I O *b*, (fig. 3,) or *a b d e*. (Plate x. fig. 5.)

3. The plane that contains the reflected image of the object, as *a g h e*, (fig. 5,) or *a i o b*. (Plate xii. fig. 3.)

Obs. 17. Their common line of intersection, when parallel to the picture, as *c a*, *p q*, or *r s*, (plate x. fig. 5,) will be parallel to W X, the vanishing line of their reflecting plane. (Art. 143.) But when not parallel to the picture, their intersection will vanish where the three vanishing lines, or any two of them, cross each other. (Art. 145.) Thus the common intersection *e a*, (fig. 5,) vanishes at C where the vanishing lines W C X, (of the reflecting plane,) V C T, (of the plane that contains the object to be reflected,) and H C R (of the plane for constructing the reflection) cross each other.

Obs. 18. Upon the position of this line of intersection with respect to the spectator, and also upon the position of the reflecting plane depends chiefly the correct delineation of reflections. For

This line of *intersection*, as also the reflecting plane may be either } *parallel*, (Obs. 20,) or *perpendicular*, (Obs. 24,) or *inclined*, (Obs. 28,) } to the picture.

Obs. 19. If the reflecting plane be parallel to the picture, the images reflected will be merely a perspective representation of that side of the objects to be reflected which is unseen by or behind the spectator. We shall therefore in the two following problems confine our attention to the other two positions of the reflecting plane; as perpendicular to, and as inclined to the picture.

Prob. IV.

Obs. 20. PROBLEM IV. *Given a reflecting plane perpendicular to the picture*, (as, for example, the surface of smooth water,) *to find the reflection of any given line.*

Intersection parallel.

1. Let the *intersection* of the reflecting plane and of the plane containing the object to be reflected *be parallel*, (Obs. 18,) as *c o*, (plate x. fig. 5,) *to the picture*, and let the reflection be required of a line *c y*, which is also parallel to the picture. Prolong *c y* at its extremity *c*, (*c* being the seat of *y*,) till *c f* equals *c y*. *c f* will be the reflection of *c y*. In the same manner is to be found *o k*, the reflection of *o z*.

Notes on Painting.

Or, let it be required to find the reflection of *y z*, also a parallel to the picture, but having another direction. Find *c*, the seat (Def. 8, Prob. I.) of *y*, and *o*, the seat of *z*. Find also the reflection *c f* and *o k* of *c y* and *o z*. Then join *f k*. The reflection of *y z* will be *f k*.

Obs. 21. Let it next be required to find the reflection of the line *i u*, (fig. 5,) perpendicular to the picture. Find the points *j* and *t*, by the method above stated, (Obs. 20,) and join *j t*, which will be the reflection sought.

Or, let the reflection be required of *x c*, inclined to the picture. Draw C *m*, which obtains *m* for the seat of *x*. (Prob. I. No. 2.) Make *m n* equal to *m x*. Then join *n c*. The reflection of *c x* will be *c n*. In like manner, *o j* reflects *o i*, *o t* reflects *o u*, &c.

Obs. 22. The angle of inclination here made by a plane with the reflecting surface may be made either *from* or *towards* the spectator. It is *from* the spectator when it lies beyond a plane passing through the line of intersection, and perpendicular to the reflecting surface. Thus the angle *u o* C (fig. 5) made by the plane *c u* with the surface of the water, is an angle *from* the spectator; because the plane *c u* is beyond the plane *c y z o*, perpendicular to the water.

On the other hand, the angle of inclination made with the reflecting surface is *towards* the spectator when made on this side of the perpendicular plane. Thus the angle *x c m*, made by the plane *x o* with the reflecting plane, is *towards* the spectator; *x o* being on this side of *c y z o*.

Observe a separate example (on the intersection *p q*) of a reflection with the angle *towards* the spectator; and another (on the intersection *r s*) with the angle *from* the spectator.

Obs. 23. The vanishing line of the plane to be reflected, and that of the plane containing the reflection, will lie on different sides of W X, the vanishing line of the reflecting surface. If the vanishing line, for example, of *c o u* (the plane to be reflected) crosses B A at B; the other vanishing line of the plane *c o t* (containing the reflection) will cross B A at A. Remark also that the angle graduated at A must be of the same number of degrees as the angle graduated at B. In other words, the central distance C A must equal the central distance C B. (Art. 24, 148.) So also of the plane *x i o c*, reflected in the plane *n j o c*, the vanishing line of the former crossing at A must have a central distance A C equal to that of the latter crossing at B on the opposite side of W X.

Intersection perpendicular.

Obs. 24. The next division of the problem refers to *planes of which the intersection with the reflecting plane is perpendicular to the picture.*

2. Let *e a* be the common intersection, (Obs. 17,) which being given perpendicular to the picture, must vanish at C. (Art. 73.) Make at C, upon the reflecting surface, and with its vanishing line W X, any given angle of incidence V C W. Next, on the other side of W X, (beneath, as it were, or within the reflecting surface,) make the angle of reflection W C R = V C W, the angle of incidence. V C, or V T, is the vanishing line of *a b d e*, the plane *to be* reflected, and R H the vanishing line of *g a e h*, the plane containing the image or reflection.

Obs. 25. The reflection here of lines parallel to the picture must be drawn parallel to the vanishing line of the plane containing the image. Thus, as *e d* is parallel to V T, so *e h*, the reflection of *e d*, must be parallel also to the vanishing line of its plane, namely, parallel to R H. Likewise, *a g* must be parallel to R H, just as *a b*, its prototype, is parallel to V T. Prolong, therefore, any portion of *d c*, or of *b a*, till they touch the reflecting surface, and through the point of contact *e*, or *a*, draw *e h* parallel to R H, and equal to *e d*; and *a g*, another parallel, equal to *a b*. These will be the reflections respectively of *e d* and *a b*.

Obs. 26. For the reflection of lines perpendicular to the picture, as *d b*; find *l* the seat of *b*, (Prob. I. Def. 8,) and make *l y* (Obs. 24) equal to *l b*. *g* will reflect to the furthest extremity of *b d*. In the same manner, find *h*, the reflection of the nearest extremity. Draw *g h*, for the reflection of *b d* required.

Obs. 27. For the reflection of any other lines in the plane *b a e d*, draw an occasional base or parallel to *e d* and V T through the given lines, and let their vanishing points, be noted on V T, the vanishing line of their plane. Next, find their dividing points, and bring each line to its proper full length on the base. Prolong the base to meet the line *e n* of intersection, and draw through the point of contact a corresponding base or parallel to *e h* and R H, on the plane vanishing in R H. For example, make C H 30° equal to C V 30°. (Art. 82, 88.) Thus may the reflection of the hexagon be obtained, or of any other diagram.

Observe here, that the angle *b a l* made by the plane *a b d e* with the reflecting plane is made *towards* the spectator. (Obs. 22.) An-

Notes on Painting.

other example is added of a plane inclined *from* the spectator which contains another diagram. For constructing the diagram consult Art. 98, and the Ist Book of Euclid, Prop. 47.

ntersection nclined.

Obs. 28. The concluding division of this problem refers to *planes of which the intersection with the reflecting plane is inclined to the picture.*

3. Let $u\,r$ (plate ii. fig. 3) vanishing at P, and, consequently, inclined to the picture, be the common intersection, and let P C be the vanishing line of the reflecting plane. Let here a similar process be pursued as with the intersection perpendicular to the picture, (Obs. 24,) only let the given angle of incidence, and, consequently, of reflection, be made at P. It will be found that the plane $g\,r$ contains any reflected image of the plane $b\,r$; $h\,r$ of $a\,r$; and $f\,r$ of $d\,r$. The plane $f\,r\,e\,u$ is a portion of the reflecting surface perpendicular to the picture.

rob. V.

Obs. 29. Problem V. *Given a reflecting plane inclined to the picture,* (as, for example, a plane mirror or other polished plane surface,) *to find the reflection of any given line.*

It will be necessary to consider this problem also in its reference to the different positions of the common intersection. (Obs. 18.) I. When the latter is inclined; 2. when it is parallel to the picture. The third case of a perpendicular intersection belongs exclusively to the preceding problem, since all vanishing lines that pass through the centre of the picture must belong to planes perpendicular to the picture. (Art. 65. Also see below, Obs. 32 and 34.)

tersection clined to e perspec- re plane.

I. When the *common intersection,* as $a\,b$, (plate xii. fig 3,) is *inclined to the picture.* Let H be its vanishing point; H M the vanishing line of the reflecting plane $c\,d\,e$; and M W the vanishing line of the plane of measure. (Art. 146, 182.) It is required to find the reflections (represented on the plane $c\,d\,e$) of the line L b, and its plane L a; of O b and its plane O a; of K b and its plane K a; of N b and its plane N a; and of P b and its plane P a.

Obs. 30. To begin with the reflections of the plane L a perpendicular to the reflecting plane. Let L b be produced to its vanishing point W, the vanishing point of all perpendiculars to any plane vanishing in H M. (Art. 196.) The angle L b S or M b W represents the angle made by the plane L a with the reflecting plane, *viz.* an angle of 90° as measured on the vanishing line of the plane of measure, *viz.* 25° on one side of R, and 65° on the other side, $25 + 65 = 90$. For determining the length of $b\,l$ raise first the direct distance at R, (Art. 130,) then draw an occasional base E C (through b parallel to M W) of the plane of measure. On this base mark off by means of the dividing point (Art. 85, 98) of l W (to be found between W and M) a portion, as N b, equal to the original of L b, as seen at the distance of b. From b C take off a portion equal to b N. A line from the same dividing point will cut b W in l; and $b\,l$ will be the reflection of b L.

Obs. 31. In the vanishing line of the plane L $l\,a$, observe that two points are found: H, the vanishing point of the common intersection with the reflecting plane; and W, the vanishing point of intersection with the plane of measure. Join H W. It will be the vanishing line of the plane L $l\,a$, (Art. 31,) which contains on one side of $a\,b$ the objects to be reflected, and on the other their reflected images.

Obs. 32. For the reflexes of the planes O a and K a inclined *towards the spectator,* (Obs. 22,) let the plane O a make an angle represented by S b O or M b D of 47° (*viz.* $25 + 22 = 47$) with the reflecting plane. It is required to find the reflexion of O b. For this purpose count the same number, 47, of degrees along the vanishing line of measure on the side of M opposite to M D. Add 47° to 25°, the number marked at M. (Art. 111.) The result will be the vanishing point marked 72 (or $47 + 25 = 72$) of the line of reflexion $b\,o$.

Again, let the plane K a make with the reflecting plane an angle, represented by K b S, of 69 degrees, namely $25 + 44 = 69$. To 25 degrees marked at M add 44° marked at the vanishing point of K b. For the vanishing point of the reflection let 69 be added to 25. $69 + 25 = 94$. Out of this number, ninety are disposed of in the parallel C E. The remaining four degrees must therefore be reckoned along M W on the same side of R with the vanishing point of K b. Subtract 4° borrowed from that side. Consequently $90 - 4$, or 86°, will be the number graduated on R W produced for the vanishing point of $b\,k$, the reflection of b K.

Obs. 33. The lengths of the reflections $b\,o$ and $b\,k$ may be determined by drawing lines O W and K W, representing perpendiculars to the reflecting plane. (Obs. 30.) O W will cut $b\,o$ in o, and K W will cut $b\,k$ in k, and thus determine the lengths.

Obs. 34. Respecting the vanishing lines of the four planes O a and its reflection $o\,a$; K a and its reflection $k\,a$: observe that they pass through the two vanishing points analogous to those mentioned in Obs. 31, namely, through H, the vanishing point of common intersection, and through the other vanishing point (in M W) of intersection with the plane of measure. A straight line through H and D, for example, will be the vanishing line of the rectangle a I O b.

Notes on Painting.

Obs. 35. For the reflection of the remaining planes N a and P a *inclined from the spectator.* (Obs. 22.) Let the plane N a make with the reflecting plane an angle of 65° represented by N b M. Here it is evident that N b must coincide with E C. The 25° marked at M being added to 65° will complete the right angle. $(25 + 65 = 90.)$ To find the reflexion of N b; note the difference between 25 and 65, or the point marked 40° on the other side of R. This point is the vanishing point of $b\,n$, the reflection of b N.

Again, let the plane P a be reflected, making an angle of 21 degrees with the reflecting plane; namely, vanishing at a point graduated 46°, between which number and 25° (marked at M) there must be that difference. (Art. 111.) To find the reflection. Deduct, on the opposite side of M, 21 degrees, $(25 - 21 = 4,)$ and $b\,p$ vanishing at the point marked 4° will be the reflection representing, by M $b\,p$, an angle equal to the angle of incidence, or 21 degrees.

Obs. 36. The lengths of the reflections $b\,n$ and $b\,p$ are determined as in Obs. 33, by representations of perpendiculars drawn to W through N and P.

Obs. 37. Respecting the vanishing lines of the four planes N a and its reflection $n\,a$; P a and its reflection $p\,a$; they are drawn through H in the same manner as those in Obs. 33. Only observe that the vanishing line of N a (drawn likewise through H) must be parallel to E C, (Obs. 35,) and consequently will not cross M W, the vanishing line of measure. The plane N a is, in fact, perpendicular to any plane vanishing in H R. (Art. 153.)

Obs. 38. Corollary. The above construction, supposing the points O K L N P to be points in a curve, would suffice for delineating the reflection of the curve by a line through the corresponding points $o\,k\,l\,n\,p$. The reflection, for example, of any arch of a bridge, might be obtained by adapting to Prob. I. an operation similar to that just stated, and by making the reflecting plane or $c\,d\,e$, represent a smooth surface of water perpendicular to the picture, and with H R for its vanishing line.

Obs. 39. The other remaining division of this problem regards the position of the *common intersection as parallel* (Obs. 29) *to the picture.*

Intersection parallel to the perspective plane.

2. Let $c\,o$ (plate x. fig. 5) be the common intersection; (Obs. 17;) A the centre of the picture; and W X the vanishing line of a reflecting plane which is inclined to the picture. It is required to find the reflection (as in Prob. IV. Obs. 20 and 21) of a line (as $c\,y$) perpendicular to the reflecting plane; or parallel, as $y\,z$; or inclined, as $x\,c$.

Obs. 40. The reflection of $c\,y$ is obtained in the same manner as that of b L. (Obs. 30. plate xii. fig. 3.) Since A (plate x. fig. 5) is given as the centre of the picture, the line $c\,y$ will vanish in the vanishing point of all perpendiculars to the plane that vanishes in W X; and its reflection $c\,f$ (as a continuation of $c\,y$) will vanish in the same point with $c\,y$.

Obs. 41. The reflection of $y\,z$ may also be obtained as before, (Obs. 20,) by first ascertaining the reflections of $c\,y$ and $o\,z$, (Obs. 39,) and then joining by a line, as $f\,k$, the reflections f and k, of its extremities y and z.

Obs. 42. The reflection $x\,c$ (Obs. 39) inclined to the picture and to the reflecting plane may also be obtained as before, (Obs. 21,) by prolonging it to its vanishing point A; and ascertaining its angle as graduated on B A, the vanishing line of the plane of measure. (Art. 82, 148.) Then on the other side of W X reckon from C, the centre of that vanishing line, towards B an equal number of degrees to those marked between A and C. If B be the point so found, join B c, which produced to n will give $c\,n$ for the reflection of $c\,x$.

Obs. 43. From want of space we here use a diagram from plate x. fig. 5, in illustration of these remarks, (Obs. 39,) instead of one more geometrically correct. It must be plain to the geometrical reader that $y\,f$, vanishing at some point in B A produced, cannot be parallel to B. A. Our student, however, will not find it difficult, nor we trust unprofitable, to reconstruct the diagram for himself.

Obs. 44. An example for Prob. V. will be found (plate x. fig. 1, No. 6) in $\mu\,g\,h\,p$, which forms the reflection of the pyramid $\mu\,g\,h\,\sigma$: (Art. 213:) provided that the base $\mu\,g\,h$ of the pyramid coincides with the reflecting plane which vanishes in a line drawn through U parallel to $g\,h$.

Other examples may be drawn also from plate x. (See fig. 1, Nos. 5, 7, and 8.) If $d\,a\,b\,c$ (No. 5) be supposed the base of a four-sided pyramid placed on a polished surface that vanishes in H L, this will be an example for Prob. IV. and $a\,e\,b$ will be the reflection of the pyramid. Also if a similar division be made of the dodecahedron No. 7, (Art. 213,) its upper half with the apex a will

be reflected by its lower half with the corresponding apex *b*: supposing the base of the upper half to vanish in P D for the vanishing line of the reflecting plane. Again, let the dodecahedron (Art. 213) No. 8 be similarly bisected; and let the plane of its bisection (*viz.* the reflecting plane) vanish in P D. The representation of its lower half will, in like manner, represent the reflection of its upper half.

Note (C.)

Light and Shade.—Obs. 45. If from any point of a reflex two straight lines be drawn to the boundary of the enlightened surface causing that reflex, and if a third line be drawn as a base to complete the triangle, the degree of light at the reflex will be greater in proportion as the angles at the base approach nearer to an equality.

Let L (plate vii. fig. 7) be the sun's light passing through an opening in the dome A K R X B: let Z V be a line drawn on an enlightened surface: and suppose the light on K to be transmitted between equal angles, or angles nearly equal. In this situation it is evident (on account of the two triangles on the same base Z V) that the reflex K will have a greater inequality between its angles K Z V and K V Z at the base, than the reflex R has between its angles R Z V and R V Z. Consequently, the point R will receive more light than the point K: and the reflex at X with the angles at Z and V, equal to each other, will be most luminous. Also the point R being nearer the enlightened body than K will be brighter. (Da Vinci, cap. 80.)

Obs. 46. Reflexes when double are brighter than when single.

Let L, for example, (fig. 6,) be a luminous body, L P and L U direct reflexes; P and U parts illumined by L: D and G parts of the same bodies illumined by the reflexes; L P G a simple reflex; L P D and L U D a double reflex; the simple reflex G is formed by the enlightened body P T, and the double reflex D by the two enlightened bodies S T and T U. Hence additional brightness at D, while any shadow of that double reflex will be so thin as to be scarcely visible; being found between the incident light, and that of the reflex P D, U D. Da Vinci, cap. 83. (*The letter* G, *at the extremity of the parallel to* A U *through* P, *has been inadvertently omitted in the plate.*)

Obs. 47. Of various reflexes the most powerful comes from the least distance. (Cap. 78. 124.)

Obs. 48. The darkness of the ground receiving a reflex (whether that darkness be made by the local colour of the ground, or from its being in shade) causes a sensible difference in the brightness of the reflex. If the reflex be cast on a light or bright ground it will not appear to impart much light, but when cast on a dark and shady ground, will be more distinctly visible in proportion to the depth of shade receiving it. (Cap. 82. 86.)

Colour.—Obs. 49. When a reflex from a coloured surface falls on another surface of the same colour, the latter becomes more vivid. Thus in the folds of drapery the local colour is deeper and more vivid where light is reflected by one part of a fold upon any other part. The reflexes, in like manner, of the human skin, are of a deeper and redder carnation, when in the vicinity of other carnations. (Cap. 81. 125.) The same appearances are given by reflexes from one object upon any other separate object of the same colour. Suppose L (plate vii. fig. 7) a light, Z V a body directly illuminated by it; X another body, out of the reach of L, and only receiving light from Z V, which is supposed of a red colour. In this case the light communicated from Z V, deriving its hue from the local colour of the body, will tinge with red the opposite body X: so that if X were of a red colour before, its redness will now be heightened and rendered much brighter than the red of Z V; but supposing X to have been yellow before, then a colour will result which partakes of both. (Cap. 117. 125.)

Obs. 50. Where different coloured reflexes having the same degree of light are cast upon any colourless surface, the latter will receive its deepest tinge from the nearest reflex, and will receive likewise various additional tints from the others proportioned to their nearness. The object, therefore, reflecting its colour with the greatest vigour upon an opposite body is that which has no colour near it, but of its own kind; and on the contrary of all reflexes, that produced by the greatest number of objects of different colours will be the most dim and confused. (Cap. 86. 124.) This phenomenon may be thus illustrated. Let P (plate vii. fig. 6) be a yellow colour reflected upon the point D of the spherical interior B G D A, and let the blue colour U have its reflex upon the same point D. By the mixture of these two colours in D the reflex will be converted into a green, if the ground be white. (Cap. 85.) For a white surface is better disposed than any other for the reception of a coloured reflex. (Cap. 123.)

Obs. 51. But variations in reflexes are caused not only by the local colour of the reflecting surface, but also of the body receiving the reflex. These two local colours mingle and form a third. Thus suppose the spherical interior B X R A be of a yellow colour, and the object Z V blue, and let X be the point where a reflex sent from Z V strikes upon B X R A, the point X in this case will become green.

Obs. 52. All reflected colours, and colours of reflexes, are less vivid than coloured surfaces which receive light from self-luminous bodies; in the same degree as the force of reflected rays must be weaker than of original or primitive rays. (Cap. 87.)

Obs. 53. A reflex from a dim or obscure body upon another of a colourless obscure is scarcely perceptible; while on the contrary, a reflex from the latter upon the former communicates very sensibly both light and colour. (*Ibid.*)

Obs. 54 Shadow produces similar appearances. A coloured reflex upon a shadowed surface is brighter and more distinguishable in proportion to the depth of shadow. (*Ibid.*)

Note (D.)

"From the foundation of the Venetian school a mode of proceeding was adopted, which, though well calculated to give the Painter a greater promptness of execution, a more commanding dexterity of hand, and a more chaste and lively colouring than is to be found in the artists of the Roman or Florentine schools, was also the means of introducing a want of correctness, and a neglect of purity in their outline. Their method was to paint every thing without the preparation of a drawing; whereas the Roman and Florentine Painters never introduced a figure of which they had not studied and prepared a model or cartoon. Following the system of his countrymen, Titian painted immediately from Nature; and possessed of a correct eye, attuned to the harmony of effect, he acquired a style of colouring perfectly conformable to truth. Satisfied with this identity of imitation, he was little sensible of the select beauty of form, or the adaptation of that characteristic expression, so essential to the higher order of Historic Painting. In his works of that description, if we look for the fidelity of the Historian, he will be found, like other artists of his Country, little scrupulous in point of accuracy. He neither presents us with the precise locality of the scene, the strict propriety of the costume, nor the accessories best suited to the subject, attributes so estimable in the works of those Painters who consulted the best models of antiquity.

Raffaelle and Titian, says Sir Joshua Reynolds, (in his eleventh Discourse,) seem to have looked at Nature for different purposes; they both had the power of extending their view to the whole; but one looked only for the general effect as produced by *form*, the other as produced by *colour*. We cannot, he adds, entirely refuse to Titian the merit of attending to the general form of his object as well as colour; but his deficiency lay, a deficiency at least when he is compared with Raffaelle, in not possessing the power, like him, of correcting the form of his model by any general idea of beauty in his own mind. In his colouring, he was large and general, as in his design he was minute and partial: in the one he was a genius, in the other not much above a copier.

"As Titian," continues Mr. Northcote, "contented himself with a faithful representation of Nature, his forms were fine when he found them in his model. If, like Raffaelle, he had been inspired by a genuine love of the beautiful, it might have led him to have courted it in selected Nature, or in her more attractive charms as found in the polished graces of the antique. The purity of his design thus united to the enchanting magic of his colouring, would have stamped him the most accomplished master the Art has produced." Northcote, *Life of Titian*, vol. ii. p. 60.

Note (E.)

"In Titian's pictures the tones are so subtly melted, as to leave no intimation of the colours which were on his palette, and it is perhaps in that respect that his system of colouring differs so essentially from that of Rubens, who was accustomed to place his colours one near the other with a slight blending of the tints. He observed that in Nature every object offered a particular surface or character, transparent, opaque, rude, or polished; and that these objects differed in the strength of their tints and in the depth of their shadows. In this diversity he discovered the generality and perfection of his Art. In imitating Nature, he took, as Mengs observes, the principle for the whole. His fleshy tones, composed in Nature chiefly of demitints, he represented totally by demitints, while he divested altogether of demitints those parts in which few were discernible in Nature. By these means he arrived at an indescribable perfection of colouring." *Ibid.* p. 65.

HERALDRY.

Heraldry. Definition.

HERALDRY, which, from its connection with PAINTING, may be introduced in this portion of our Work, may be defined "The Art of blazoning and assigning Coat Armour;" or, more diffusely, "The theory of classifying, adapting, and explaining certain conventional distinctions impressed on shields and military accoutrements." The definition of this artificial Science is not a little important in the investigation of its History. Inaccuracy in this respect has led to the most discordant opinions regarding its origin. Not to mention the famous *Book of St. Albans*, which gravely informs us that the Angels are "in cote armoris of knowledge," and the Pedigree of the Saxon Kings in the College of Arms, London, which exemplifies the bearings of Noah and Japhet,* the enthusiastic but authoritative Gwillim removes the origin of his favourite Art only one generation lower, making it proceed from "Osyris, surnamed Jupiter the Just, son to Cham, the cursed son of Noah, called of the Gentiles Janus;"† whilst Mr. Hallam, following many respectable authorities, places the invention of armorial blazonry in the XIIth century.‡ Scarcely any two professed writers on the subject are agreed on the precise point whence to date their Histories. But this variation is not in reality any argument of obscurity in the matter. Each author has assumed an epoch in the History of Heraldry as its original; but, with the exception of those epochs, the progress of the Art has been an imperceptible transition from the simplest principles to its present intricate and scientific construction. We shall not, therefore, attempt to assign any exact period to its invention, but prefer tracing the Science of Arms from the first rude emblems of warlike adventurers and independent settlements to the knightly cognizances of the Court and the Tourney.

HISTORY OF THE SYSTEM.

I. *Personal Heraldry.*

Egyptian Heraldry.

We cannot with Gwillim extract from Diodorus Siculus the arms of Osiris, Hercules, Macedo, and Anubis; nevertheless, we think it highly probable that significant devices on shields and military implements were in early use among the Egyptians. The practice of adorning the shield with some expressive device must be almost as ancient as the weapon itself; this, the nature of Man warrants us to conclude; but there are some circumstances which might give the Egyptians an inclination to extend and improve a practice founded in human propensity. The recent discoveries in Hieroglyphics, while they have proved the existence of a Hieroglyphical alphabet, have also, in part, confirmed the popular opinion, and shown that many of the Egyptian characters were truly symbolical. The high antiquity of those symbols is admitted; and it is quite incredible that, employed as they were in every variety of appropriation, they should have been absent from the decorations of the Egyptian hero; while the early civilization of Egypt will lead us to expect a proportional superiority in the ornamental Arts. History.

Among the earliest opinions respecting Heraldry, we may here notice the celebrated tradition of the Rabbins, respecting the Standards of the Hebrew Tribes. That the Tribes of Judah, Ephraim, Dan, and Reuben, were distinguished by peculiar ensigns is positively asserted in the Pentateuch.* The Rabbinical writers inform us that these were banners respectively charged with the figures of a lion, an ox, an eagle grasping a serpent, and a man. But this opinion has been rejected for the soundest reasons. There are no traces of any such distinctions either in the Bible or in any authoritative History. The tendency of the Jews to idolatry, and their late converse with animal objects of adoration in Egypt, render it extremely improbable that any thing of the kind should have been permitted. The whole policy of the Jewish Law is so strongly opposed to the very principles of Heraldic decoration, that the History of that People is certainly the very last wherein we might hope to collect materials for the illustration of the present subject. We think that there is much probability in the conjecture of many commentators, that the Standards of those Tribes bore simply their several names; especially as the Maccabees are supposed to have borne in their banner the letters from which they derived their name, מ כ ב י, the initials of מי כמך באלהים יהוה, "Who among the gods is like unto thee, O Lord?" Jewish Heraldry

Among the Greeks, however, with whom no similar obstacles subsisted, Heraldry had early attained a considerable perfection; to them, according to Herodotus, the Art was derived from the Carians.† We use the term *Heraldry* advisedly. The Art, it is true, had no connection with those public functionaries from whom it afterwards received its name, and who were as well known and as distinctly recognised in the Heroic times as in the days of Chivalry. It was not till the establishment of Colleges of Arms (institutions subsequent to the latest periods assigned for the origin of Heraldry) that such a connection entirely subsisted. But the Art of adorning military habiliments with expressive devices was in high advancement among the Greeks. If the bearings of the Seven Chiefs who besieged Thebes, so gorgeously blazoned by Æschylus and Euripides, be traditional, the enthusiastic Heralds of the XVIIth and earlier centuries would scarcely exaggerate the antiquity of their Art. But, without settling the question of the existence of a Trojan war, which our sceptical Age has mooted, we can scarcely deny to the Poems of Homer and Hesiod a very considerable antiquity; and the shields of Achilles and Hercules, so elaborately described by those Poets, prove that, in their time at least, the Art had made important progress.‡ The principles of ornament, however, adopted in these Greek Heraldry.

* That of Noah is *azure*, a rainbow proper; of Japhet, *azure*, an ark proper. But there seems to have been some disagreement among these primitive Heralds, for the *Book of St. Albans* gravely informs us, that "Jafet made first target, and therein he made a *ball*, in token of all the worlde."

† *Display of Heraldry*, ch. i.

‡ *History of Middle Ages*, vol. i. p. 146.

* *Numb.* ch. ii *pass.*

† *Clio*, clxxi.

‡ *Scutis, quibus ad Trojam pugnatum est, continebantur imagines.* Plin. lib. xxxv. c. 3.

Heraldry. shields, are much less methodical and appropriate than those which apply to the shields of the Antithebans; a circumstance which may lead us to conjecture that the latter are the invention of the later Poets, who lived in an improved condition of the Art. The transition from these to the present refined theory of Heraldry is so easy, that it will not be impertinent to state them. According to Æschylus, Tydeus bore in his shield a full moon, surrounded with stars; Capaneus, a naked man holding a lighted torch, *with the motto* ΠΡΗΣΩ ΠΟΛΙΝ; Eteocles, an armed man ascending a ladder placed against a tower, *with the motto* ΟΥΔ' ΑΝ ΑΡΗΣ Μ' ΕΚΒΑΛΟΙ ΠΥΡΓΩΜΑΤΩΝ; Hippomedon, Typhon, vomiting smoke and fire, surrounded by serpents; Parthenopæus, a sphinx, holding a man; and Polynices, Justice leading an armed man, with this motto:

ΚΑΤΑΞΩ Τ'ΑΝΔΡΑ ΤΟΝΔΕ ΚΑΙ ΠΟΛΙΝ
ΕΞΕΙ ΠΑΤΡΩΙΑΝ ΔΩΜΑΤΩΝ Τ' ΕΠΙΣΤΡΟΦΑΣ.

Euripides assigns somewhat different appointments to his heroes. According to his enumeration, Parthenopæus exhibited his mother Atalanta chasing the Ætolian boar; Hippomedon, the figure of Argus; Tydeus, the figure of Prometheus, holding in his right hand a torch; Polyneices, the horses of Glaucus; Capaneus, a giant bearing a city on his shoulders; and Adrastus, a hydra of 100 heads, carrying the Thebans off their walls. The shield of Amphiaraus, according to both authors, had no device.* Without urging the argument from tradition, and supposing the Poets had no authority for their devices, beyond what fancy, aided by the customs of their own time, suggested, (a supposition certainly somewhat exceeding what might be fairly allowed) we have here a proof of a very considerable advance in Heraldry so early as 450 years before the Christian Æra. A principal difference between this and the more modern system appears to be, that, in the former, *colour* is an unimportant circumstance, in the latter, essential. The devices on ancient shields were, indeed, most commonly expressed in relief on the metal; although Virgil† mentions the *picti scuta Labici*, concerning whom our want of information is to be much regretted, as the learned Poet most probably wrote from authentic tradition. Another material distinction is the absence in ancient Heraldry of every thing like *ordinaries*, which form so extensive a department of the new. But with respect to the hereditary property of Arms, this has not always been observed even since the acknowledged existence of Heraldry, as may be seen in the case of the last two Earls of Chester, the two Quincies, Earls of Winchester, and the two Lacies, Earls of Lincoln: no *positively hereditary* bearings have been found in England before Henry III.'s time; while in some instances, something like hereditary devices may be found among the Ancients, as we shall presently observe. And the assumption of Arms for a peculiar object is not confined to ancient Heraldry, since Stephen, King of England, changed the leopards into Sagittaries, on account of his landing when the Sun was in that Sign.

We have remarked here that the shield of Amphiaraus was blank. Æschylus and Euripides concur in representing this as the effect of his modesty, which would not anticipate a precarious victory. Indeed the emblems of all his companions in arms had reference to future glories. But, in some instances, heroes more prudently appealed to Memory rather than Hope, and where this was the practice, a maiden shield betokened an undistinguished warrior. Thus the youthful Helenor is designated by Virgil *parmâ* inglorius *albâ*;* and this sentiment is in strict accordance with the usages and opinions of Chivalry.† The plain shield of Camilla‡ was an emblem of purity; nor was this at all at variance with the ideas received at a more advanced period of the Art. But the instance which, above all others, seems to approximate the characters of ancient and modern Heraldry is to be found in the devices granted by Alexander to his followers, with an especial provision that the same should not be borne by any other person throughout his Empire. History.

Nor was the *Crest* unknown to antiquity, and it arose as naturally as the impress of the shield. A plain ridge of rough horsehair, which has been proved by experience an excellent defence against sabre cuts, was the first appendage to the helmet. This was afterwards doubled, tripled, and even quadrupled;§ whence the τριφαλεία, *quasi* τριφαλεία, as Grammarians say, although this etymology may be disputed. Something was necessary to unite this covering to the surface of the helmet, and fancy and art soon contrived to make this supplement ornamental and emblematical. Gems and Statues furnish us abundantly with the forms of animals, &c. used in this manner. Turnus is described by Virgil as bearing for his Crest a Chimæra;‖ and Corvinus, in the Poem of Silius,¶ exhibits on his helmet a Crow. We may here observe more fully that the armorial bearings of the Ancients were occasionally hereditary. This Crow was *ostentans alces proavitæ insignia pugnæ;* the Story of Io appeared on the shield of her descendant Turnus;** the Swan's plume on the helmet of Cupavo indicated his descent from Cycnus:†† and the Hydra on the shield of Aventinus declared him the progeny of Hercules.‡‡ The family device was frequently impressed on the hilt of the sword.§§ There is a much litigated passage of Suetonius which seems to have been very properly adduced by those who support the antiquity of Heraldry. *Vetera familiarum insignia*, says the Historian, speaking of Caligula, *nobilissimo cuique ademit; Torquato torquem; Cincinnato crinem: Cn. Pompeio, stirpis antiquæ, Magni cognomen.*|||| Nisbet strangely explains away this direct and positive language. "It imports no more," he observes, "than that Caligula, being displeased with the grandeur of these families, commanded to take from *their Images or Statues*, as from that of Torquatus, the collar or chain that he took from one of the Gauls, and from that of Cincinnatus the tuft of hair which that brave Roman Ancient crests. Hereditary bearings.

* "Amphiaraus, (as Pindarus the Theban Poet affirmeth,) in his expedition to Thebes, bare in his shield a painted dragon." Gwillim, sec. 1. ch. i. This author is more loquacious than correct. Perhaps he alludes to Pyth. viii. 66, where this emblem is assigned to *Aleman*.

† *Æn.* vii. 796.

* *Æn.* ix. 548.

† "A young knight would not, during his first enterprises, assume his family Arms, but he wore plain armour, and a *shield without any device*, till he had won renown."—Mills, *History of Chivalry*, ch. iv.

‡ *Puraque interrita parmâ.*—*Æn.* xi. 711.

§ ——— ἀμφὶ δὲ καλὴ
ΤΕΤΡΑΦΑΛΟΣ φοίνικι λόφῳ ἐτιλάμπετο πήληξ.
Apoll. Rhod. xi. 321.

‖ *Æn.* vii. 785.

¶ Silius Ital. v. 78.

** *Æn.* vii. 789.

†† *Ibid.* x. 187.

‡‡ *Ibid.* vii. 657.

§§ Ov. *Met.* vii. 422. Senec. *Hippol.*

|||| Suet. *Cal.* xxxv.

had spoiled of one of the enemies of the Romans, and likewise the epithet *Great* to be defaced in the inscription of the Statue of Pompey; the word *Great* makes it evident that the other marks, the collar and hair, were not hereditary ones as Arms, otherwise the author had expressed himself thus, that Caligula caused the chain to be taken from *the Torquati*, and the tuft of hair from *the Cincinnati*, and not simply from *Torquatus* and *Cincinnatus.*"* To all this there is a very simple reply; the devices are expressly called *familiarum insignia.* The persons mentioned were probably the heads of the several families, who alone were accustomed to wear them, and therefore alone could lose them. And that *cognomina* were sometimes hereditary is a fact too notorious to deserve insisting on. Not a syllable occurs respecting Statues, which do not seem even alluded to.†

Jus Imaginum.

As an instance of the existence of hereditary honours among the ancient Romans, some authors adduce the *Jus Imaginum;* but this was in reality widely distinct from hereditary armorial bearings, being only a permission to possess Statues of noble ancestors, and to parade them on the occasion of a funeral. It answered the modern purposes of Heraldry as an institution, but it had nothing in common with the theory of family devices.

We have seen then that there subsisted among the Ancients the practice of adorning the shield with appropriate figures; that they were acquainted with mottoes and crests; that, as all the inventions of modern Heraldry were not hereditary, so neither were all those of ancient ingenuity merely personal; but that colour was an indifferent circumstance, ordinaries unknown, and no peculiar phraseology in use for designating military decorations.

Crowns.

But among the Ancients a species of Heraldic distinction existed which has been adopted by modern Heralds without any variation except the addition of a number of others, which are called *Coronets.* This was the *Crown.* It was either a token of office or of merit. Its various species we shall proceed to enumerate.

I. *The Eastern Crown.* A gold rim, surmounted with eight rays, five of which are visible in Heraldic representations. This Crown is found, with trifling variation, on the coins of ancient Eastern Princes, especially those of Greek extraction. It also appears on some of the coins of the Lower Empire. Although a Crown of *office* with the Ancients, it has become in modern Heraldry a Crown of *honour*, and is given to those who have distinguished themselves in the East. The Lions which support the Arms of the East India Company wear this Crown.

II. *The Triumphal Crown.* This Crown was originally a distinction of honour, being granted to Roman citizens who had achieved any great exploit in the service of the Commonwealth. It is composed of bay, bearing berries, and tied behind with a *fascia.* But being allowed to Julius Cæsar for the purpose of concealing his baldness, it was afterwards assumed by the Roman Emperors, and became the *Crown Imperial.*

III. The *Circlet*, the στέφανος of the Greeks, and *corona* of the Latins. A plain rim of gold, given to merit of various kinds. This is also sometimes found as an *insigne* of Royalty.

IV. The *Obsidional Crown.* This was granted to the successful defenders of besieged towns, or to those who had performed any eminent exploit in defence of a fortified place. It is composed of grass taken from the scene of the hero's valour. It is rarely met with, and has never, so far as we know, been adopted into modern Heraldry.

V. The *Civic Crown.* A tribute from the State to one who had saved the life of a citizen. It is of oak leaves, acorned, and is justly considered an honour of the very highest character.

VI. The *Crown Vallary*, (*corona vallaris.*) This was given to the soldier who first entered the enemy's trench. It is a plain rim surrounded by palisades in imitation of those which guarded the entrenchments of the Ancients.

VII. The *Mural Crown*, made in imitation of the battlements of a wall, to commemorate the valour of such as distinguished themselves in the attack of a city.

VIII. The *Naval Crown* was granted to those who distinguished themselves by exploits at sea. It is a rim adorned with alternate sterns and masts of ships. It is (as might be expected) often found on the Arms of Englishmen.

IX. The *Celestial Crown*, resembling the Eastern, except that each ray terminates in a star. This Crown was placed on the Statues of deified Emperors, &c. It is preserved on hatchments and funeral escutcheons.

As this species of Heraldry, which consists of emblematical distinctions granted by Princes and Governments, appears never to have fallen into disuse, so it is likely that the decorations of shields, and the fanciful variations of crests, were preserved through the darkest Ages, although with much less elegance of invention and application, and great inferiority of execution. This is, however, only a probability, as the subject of Heraldry is enveloped in the darkness with which the Gothic conquests invested every province of History. Beckman* affirms that regular Arms may be found on the shields of Clothair, Dagobert, Pepin, &c. and Selden† mentions golden seals of the French Kings, and waxen ones of their subjects, between A. D. 600 and 700; but these authors give no authority. Edmondson, however, thinks these assertions quite sufficient, considering the dignity of the persons who make them. This is a very unsafe confidence, especially in the History of Heraldry. Never, perhaps, did an Art or practice exist which has excited so much enthusiasm in proving its antiquity, or so great a disregard of facts which invalidate that opinion. Much stress has been laid on a passage common to Æginhardus and Aimonius, Biographers of Charlemagne, who say that Count Guy, to whom that Prince had intrusted the conquest of Brittany, delivered up the *arms* of the several Chiefs who submitted, with their names inscribed thereon: *arma ducum qui se dediderant inscriptis singulorum nominibus, detulit.* But the word *arma* seems capable of a much simpler interpretation than that which the Heralds advance, and which would scarcely present itself to any but a Heraldic mind. The passage in Joinville which derives the Arms of Arnold de Commenges, Viscount of Couzerans, from an ancestor who received them from

* *Ancient and Modern Use of Arms.*

† See also Edmondson, a Herald of uncommonly phlegmatic constitution, who, instead of carrying the origin of his profession to the antediluvian times, disputes and qualifies *all* these express testimonies.

* *Notitia dignitatum*, diss. vi. ch. iii.

† *Tit. of Hon.* xi. 2.

Heraldry. Charlemagne, has been proved an interpolation. Edmondson busies himself about the shield delineated by Uredius in his copy of the seal of Arnulf, Earl of Flanders, (A. D. 941;) but the words of Uredius, who spoke from actual inspection of the impression, are, *quonam id symbolo insignitum fuerit, præ vetustate non apparet;* words which make it exceedingly doubtful whether it bore a charge at all. All this, however, is merely negative evidence; and when the causes and objects of Heraldry are considered, it will be difficult to suppose that it was ever entirely neglected; and it is certain (as we shall presently show) that the Knights who contended in the Martial Games established by Henry the Fowler, actually employed emblematical and hereditary distinctions. But the prevalence of devices on the shields of sovereign Princes, will at best only prove the existence of a *national* Heraldry, which is undoubtedly ancient.

Bayeux Tapestry. In that very curious monument of antiquity the Bayeux Tapestry, said to have been executed by the Queen of William the Conqueror, assisted by the ladies of her Court, the shields of the characters are chiefly adorned with patterns of mosaic and diaper. The four guards of Guy, Count of Ponthieu, are represented, two bearing strange monsters, and the other two, figures not very explicable, but which we have delineated in fig. x. xi. The emissaries of King William bear a kind of wyvern. Montfaucon says, "these are no armorial decorations." This is a matter of opinion which we leave to the judgment of our Heraldic readers.

Occasional glimmerings are, however, afforded, which prove the Art to have been in existence before the 1st Crusade. The seal of Robert of Friesland, Earl of Flanders, of which Uredius gives a copy, appended to an Instrument dated A. D. 1072, represents the Earl bearing on his shield a lion. If Snorro Sturleson, the author of the Northern History, is to be credited, Magnus Berfetta, son of Olaf Kyrre, who became King of Norway A. D. 1093, bore, when he invaded Ireland, *gules*, a lion *or*, on his shield and *surcoat*. If this be true, we have here a complete instance of the improved modern Heraldry. The 1st Crusade was proclaimed Crusades. at the Council of Clermont, A. D. 1095. That this circumstance gave a considerable impulse to the Art is beyond a doubt. One of its principal features was the assumption of a badge, the variation of which has produced a large proportion of Heraldic images. And the intercourse which it opened with the East, the land of symbol and of allegory, contributed necessarily to advance an object which it was, independently, well calculated to serve.

French and Norman Heraldry. It seems, however, beyond all doubt, that the earliest *proficients* in modern Heraldry were the French and Normans. It is probable that mutual advantages resulted to both nations from the settlement of the latter People in France. The rude system of the Northern warrior became refined and artificial from his intercourse with the courteous cavalier of the South, to whom he in return imparted new materials and new ideas. We do not here speak of national, but of personal emblems: for national Heraldry, in its most proper sense, is of great antiquity. This, therefore, will not be the place to notice the undoubtedly ancient Arms of France, those of Edward the Confessor, and of Normandy, which the Conqueror transferred to the shield of England.

On the seals of the early Norman Monarchs of England their equestrian figures are portrayed; but the interior only of their shields being visible, nothing can be determined as to their Heraldic bearings.* This, perhaps, is not of so much moment to the question as is generally supposed: for, if they bore any charge at all, it would, in all probability, be that of Normandy: and the existence of appropriate national devices at that time we shall be enabled to prove beyond a doubt. But "in a splendid illuminated Genealogy of Queen Elizabeth, deduced from Rollo Duke of Normandy, remaining in George III.'s Library presented to the British Museum, King William is represented bearing on his left arm a red shield, charged with two golden lions, and *holding in his right hand a banner, barry of ten, argent and azure.*"† "A MS. in the Harleian Library, No. 1073. fol. 6. tells us that the charge on the banner was borne as arms by Fulbert de Faloys (Falaise) his maternal grandfather, and that William himself did bear the same before the Conquest."‡ If this be true, it settles some important points. 1. That personal Heraldry was in use two generations before William the Conqueror. 2. That it might be hereditary.§ 3. That it had attained the refinement of ordinaries. Certain it is that the Conqueror's banner, as represented on his seal, bears some resemblance to the barry of Heraldry; but if barry at all, it is barry of six; and thus it is given in Bossewell's *Works of Armorie*, and in the Harleian MS. quoted in the note to Willement's *Regal Heraldry* already noticed: probably on the authority of this identical seal. The device on the seal, however, more nearly resembles three small parallel pennons on one spear than any Heraldic charge whatever. The banner of William Rufus on his seal exhibits what might be called *paly*. For this there certainly appears no assignable reason from what would now be called "Heraldic" considerations. The banner of Stephen exhibits distinctly a cross. The shield of Richard I. is the first which displays lions; but as here we again cross the frontier of *national* Heraldry, we shall repass for the present to take a more general view of *personal*.

History.

Ordinaries, colours, and furs. For the introduction of ordinaries, colours, and furs, which form so essential a branch of the modern Art, we seem, indisputably, indebted to the ancient Germans. The words of Tacitus, *scuta tantum lectissimis coloribus distinguunt*,‖ are very remarkable. They prove, 1. That the Germans were not in the habit of bearing *devices* on their shields, as these would otherwise have been mentioned; probably through the want of a sufficient know-

* "From the time immediately subsequent to the reign of our first Henry, the fashion was altered; and the persons on horseback represented on the counterpart of seals, appear either as carrying their shields pendent on their breasts, or bearing them on their right arm, so that the convex side of the shield being turned towards the spectator, the charge thereon becomes visible. *The earliest instance of the prevalence of the latter fashion of carrying shields, occurs in an impress of the seal of Stephen, Earl of Richmond. Anno* 1137, *who is there figured holding on his right arm a shield charged with seven fleurs-de-lys.*" Edmondson. This is earlier than the instance adduced by Mr. Gough, the shield of Geoffrey de Magnaville, Earl of Essex, in the Temple Church, who died in 1144.

† Willement's *Regal Heraldry*, p. 2. note.

‡ *Ibid.*

§ The *Tabula Eliensis*, still preserved at Ely, said to be contemporary with the Conqueror, represents the Norman Chiefs who were quartered on the Monks of Ely, and under each Chief are delineated his *family Arms*. If this Picture could be proved genuine, such testimony would be decisive. But this is more than questionable. Fuller refers it to 1306.

‖ *De Mor. Germ.* vi.

Heraldry. ledge of Art. 2. That they bore on a shield more colours than one: and it is evident that even the most barbarous people would have arranged these colours so as to produce a pleasing effect to the eye, which could only be attained by their distribution into mathematical forms like those now called ordinaries. 3. The word *lectissimis* shows that this distribution and ornament was a choice point with them; which is further confirmed by an assertion immediately preceding, that in other respects they did not affect ornament. Nulla *cultûs jactactio; scuta* tantum *lectissimis coloribus distinguunt.* Whether these colours were selected for their beauty and scarcity, or whether as domestic and personal distinctions, is not easy to say; but selected they certainly were, and selection implies an object and a system. Nor less directly does the testimony of Tacitus indicate the origin of Heraldic furs. *Eligunt feras, et detracta velamina spargunt maculis pellibusque belluarum, quas exterior Oceanus atque ignotum mare gignit.** Here we have, 1. The same circumstance of selection as in the colours;—*eligunt feras.* 2. The origin of all varied furs, as the ermine, ermines, &c. Ernesti, on this passage, explains the *belluæ* to mean *sables*, and interprets *exterior Oceanus, the Countries beyond the Ocean;* somewhat widely. Animals of the seal species are most probably intended. The *sagum* of the Northern nations was the rude sketch of the surcoat; and probably produced ordinaries of its own. The difficulty of procuring an entire dress of the same skin introduced the expedient of disguising necessity by ornament, and thus two or more furs were joined in an ornamental manner, at first simply, afterwards more artificially. Thus, while the *cross*, the *quarterly*, the *gyronny*, the *checky*, the *fretty*, &c. seem to be the most natural divisions of the shield; the *chief*, the *pile*, the divisions called *party*, appear to be those which would most naturally arise from the disposition of furs. The refinement of which we have been speaking introduced the distinctions embattled, engrailed, &c. Indeed, the introduction of furs into the shield at all, probably, arose from the device on the surcoat.

The gradual intermixture, therefore, of the Teutonic nations with those Tribes which had been civilized by the Romans, and the ultimate settlement of the Normans in France, produced, from the combination of military distinctions, the beautiful theory of chivalrous Heraldry, which arose by so nice gradations that it is easier to trace its advancement than to assign its origin; although even the former is not minutely practicable in illiterate Ages. It is remarkable, however, that ordinaries enter little into *national* Heraldry. The chevron does not enter it at all. They are only found in the Arms of small Provinces, which probably adopted those of their Rulers. And this is a powerful, collateral argument in favour of the antiquity of national Heraldry; since we find it so little affected by an introduction which has insinuated itself into almost every family escutcheon.

The reproduction of Heraldry was not instantaneous, nor was its progress uniform. Accelerating circumstances occasionally operated; among which Tournaments and Crusades are justly regarded prominent, although incorrectly assigned as causes where they were simply stimulants. For in that most curious fragment of antiquity, the *Leges Hastiludiales* of Henry the Fowler, we find all persons prohibited from running in the lists who could not prove their "*insignia gentilitia*" for four generations; and violations of these laws are threatened with the forfeit of *insignia gentilitia.* And what these could have been but a kind of family Arms, it is not easy to determine. Of these causes the Crusades are justly considered the most important. For those events created so intimate a connection between the nations of Europe, and so strong an expediency, not to say necessity, for the distinctions of Heraldry, that the intercourse which then arose established the Science on its present basis, and incorporated the local peculiarities of its use into a grand, general, and comprehensive system, which, with very slight variations, and those chiefly very modern, is received throughout the whole of civilized Europe. Although we would scarcely say with Mr. Dallaway, "the feodal system and armorial ensigns are coeval,"* yet that system, which obtained so extensively, had no doubt a great influence in *differencing* Arms. The tenants of a fief would naturally adopt the same Arms with the lord, subject to such differences as should clear them of presumption, or be significant of their fealty. History.

During the reign of Henry III. Heraldry made rapid progress in England. It was then that Arms became settled and hereditary. The Art had its appropriate devices and vocabulary; and both were nearly as full as at the present day. This is evident from *Les Noms des Chevaliers en le Champ du Roy Henry III.* A. D. 1220, a MS. in the Bodleian Library. To this succeeds the exceedingly curious *Roll of Karlaverock*, lately edited in a sumptuous and accurate manner by Mr. Nicolas. It is a contemporary Work, written in Norman-French verse, and recounts the names and arms of the Knights who attended King Edward I. in his expedition into Scotland, A. D. 1300. The Arms are blazoned with great minuteness and accuracy. By this time the Art was so far reduced to system, that it had distinct Professors, whose duty was not only to be the expositors of its principles, but also to invent and appropriate coat-armours. The long and chivalrous reign of Edward III. and his taste for Tournaments considerably advanced the interests of Heraldry; while the love of dress and exhibitions which characterised his successor, had its influence in enlarging the province of the Art, at the expense, perhaps, of its significance and purity. In the reign of Henry VI. the *Book of St. Albans*, by Juliana Berners, Abbess there, proves that the Art had attained a most considerable refinement.

Heralds

At what time Heraldry first became connected with the officers from whom it derived its name cannot with certainty be determined. The name appears Teutonic: *Herr alt*, aged sir, or lord. It is a translation of the term *veteranus*, a retired soldier, who waited on the Roman Emperors, and was by them employed in messages and negotiations. The office is certainly of very high antiquity. Among the Greeks, Heralds were called κήρυκες. Those of the Athenians affected to be descended from Ceryx, son of Mercury; those of Lacedæmon, from Talthybius, Herald of Menelaus. But the term κήρυξ was indefinitely applied to all. Their duty was to keep order in public deliberations, to bear messages in time of War, to proclaim War and Peace,

* *De Mor. Germ.* xvii.

* *Inquiry into the Origin and Progress of Heraldry in England*, sec. 1.

Heraldry. Sacrifices and Festivals, and to be present at National Compacts. Their persons were held sacred and inviolable. They are also frequently represented as assisting in dressing the victim for the table in Religious Festivals, and as pouring out the wine on those occasions. Their ensign of office was a sceptre, called κηρύκιον, made of laurel or olive, round which two serpents were entwined. Sometimes, however, they bore an olive-branch covered with wool, and adorned with fruits of the earth, called εἰρεσιώνη. The κήρυξ in the *Agamemnon* of Æschylus is crowned with olive; but this perhaps rather indicates the occasion than the office. To the Greek κήρυξ succeeded the Roman *Fetialis*. His duties are laid down in a law quoted by Cicero. (*de Legg.* II. viii.) *Fœderum, pacis, belli, induciarum oratores fetiales judices* duo* *sunto. Bella disceptanto. Prodigia, portenta, ad Etruscos et haruspices, si Senatus jusserit, deferunto.* Some other offices are perhaps assigned them by the same law, which is evidently corrupted. Their office was very ancient. Dionysius refers the institution to Numa; and, considering the general character of this Prince, the reference appears probable. Livy introduces them in the reign of Tullus Hostilius, in the affair of the Horatii and Curiatii, where he narrates, with much solemnity and circumstance, their ceremonies in confirming a national compact. The *Jus Fetiale* attracted the peculiar attention of Ancus, in whose time the Herald declared War by proceeding to the hostile territory, wearing on his head a wreath of wool, and casting over the frontier a spear, or a bloody staff burnt at one end. The Heralds of the Romans were incorporated into a College. Some suppose the *Pater Patratus* to have been a kind of King of Arms; but he rather seems to have been a temporary officer, the acting Herald on public occasions. The same circumstances which first rendered necessary the office of a Herald, perpetuated the appointment to the time of the early Tournaments. Heralds, in those entertainments, were absolutely indispensable for the maintenance of order, the administration of oaths, and the proclamation of the style of the combatants. As the armorial Art became extensive and systematic, a knowledge of its principles became requisite in these functionaries; and, ultimately, as the course of events would lead us to expect, they attained an exclusive control over that which at first they had reverentially studied, and to promulgate authentically the laws of that system of which they had once been the respectful disciples.

The transition from the ancient to the modern functions of the Herald was as insensible as that from ancient to modern Heraldry; and nearly collateral. The Nobility and Knights retained Heralds to proclaim their style, &c. who soon became their authoritative advisers on the subject of armorial distinctions, which, as they increased in influential importance, demanded the especial attention of a professional class. When private individuals granted Arms, Heraldic advice was indispensable. Hence came too the distinction of Pursuivants, or Probationers for the Heraldic office; a distinction which still continues to obtain. But it is in the reign of Edward III. that we find the first positive evidence of their regular recognition by Government. That Prince created two Kings of Arms, Surroy and Norroy, who took cognizance of Heraldic matters to the South and North of the Trent respectively.* History. Richard II. laid the first foundation of a College of Arms, by giving the Earl Marshal power to preside in the Court of Chivalry, and to summon the Heralds to his assistance. The Heralds there appeared as advocates, having analogy to Barristers, as the Kings of Arms might be said to have to Serjeants at Law, and the Pursuivants to Law Students. The nature of the causes tried in this Court, mostly referring to armorial bearings, at once settled and enriched the system. But the first regular Collegiate Heraldic Chapter was held at the siege of Rouen, A. D. 1420. From that time the Heralds College of Arms. became a Corporate Body, having their statutes and observances; and it remained only for Richard III. to establish them in a permanent abode in London, and to give their institution the seal of his patronage and authority. They had already been incorporated in France by Charles VI. A. D. 1406.

Although, on account of their natural attachment to their benefactor, the Heralds suffered in the reign of Henry VII., and were expelled from their College, the office was not on that account disrespected; on the contrary, that Monarch constantly retained about him one individual of each Heraldic Order. But the Kings of Arms were reduced to three, their present number. Henry VIII. augmented the revenues and privileges of the Heralds, and during his reign we find them continually employed in public duties and negotiations. This Prince was partial to Heraldic honours, as little costly to the Sovereign, and, in those days of chivalrous sentiment, often more satisfactory to the wearer than more solid distinctions. From this reign we may *chiefly* date the custom of honourable augmentation, which, while it has rendered the Art more complex, has diminished its distinctness and peculiarity.

Heraldic Visitations of Counties, with a view to collect information with respect to genealogies and hereditary coat-armour, had occasionally taken place from the time of Henry IV. But in 1528 a regular Commission was granted for a general Visitation of the whole Kingdom; and from that time till the early part of the XVIIIth century, the practice was renewed every twenty or thirty years. This circumstance had an important influence on Heraldry. Every wealthy person was ashamed to have his genealogy recorded without appendent coat-armour; and those symbols, which had formerly been the exclusive guerdon of knightly prowess, were now at the purchase of merchandise and trade. Hence were introduced a number of devices unconnected with the Science, and not always strictly harmonizing with its spirit, but significant of the origin and occupation of their wearers. Yet there can be no doubt that much irregularity was hereby removed; although the rules to which practice was ordinarily recalled, differed in principle from those of purer Ages. The intercourse also which the European nations in general now began to maintain with Italy, and which so powerfully affected the interests of Art, could not be without operation on the kindred pursuits of Heraldry; an operation which, however advantageous to the *graphic* province of the study, was highly prejudicial to the theory, which it adulterated and defaced with incongruous emblems. Heraldic Visitations.

Edward VI. reinstated the Heralds in an establish-

* This reading is very uncertain, and, as we think, improbable.

* The whole History of Kings of Arms is involved in much obscurity: even this fact respecting them, which is one of the clearest, has been controverted.

Heraldry. ment on the site of that which they at present occupy. From that period, as might have been expected, Heraldry has in England become more settled and scientific; authentic Treatises have illustrated, established, and enriched the subject; and there are no variations in the system worth recording here. England, indeed, may justly claim the honour of having maintained with the greatest effect the purity and significancy of Heraldry. The control which the College of Arms has always exercised in the assignation of Heraldic bearings has prevented many of the absurdities which disfigure foreign coats of Arms, where Sovereigns, totally ignorant of the principles of the Art, and at least virtually absolute, have obtruded not only inconsistent devices on their distinguished subjects, but contradictory rules on the Science itself.

ings of rms. The present Heraldic establishment consists of three Kings of Arms, *Garter*, *Clarenceux*, and *Norroy*. Garter is the principal officer, and is Herald of the military Order of that name, as well as head of the Heraldic College; Clarenceux has succeeded to the office formerly held by Surroy; and Norroy retains his ancient duties. The duties of Garter are principally to grant supporters, arrange funerals, and to present the Order of the Garter to foreign Princes. The office of a Provincial King of Arms is well described in *A Discourse of the Duty and Office of a Herald of Arms*, by Francis Thynne, Lancaster Herald, which was presented by him to the Earl Marshal in 1605, and which may be serviceable to the reader.

"It shall not be unpleasant, I hope, unto your Lordship to know what the authority of a King at Arms is in his province; and for that cause I have here set them down. First, as nigh as he can, he shall take knowledge, and record the Arms, crests, and cognizances, and ancient words, as also of the time and descent, or pedigree of every gentleman within his province of what estate or degree soever he be. Item: he shall enter into all churches, chapels, oratories, castles, houses, or ancient buildings, to take knowledge of their foundations and of the noble estates buried in them; as also of their Arms and Arms of the places, their heads and ancient records. Item: he shall prohibit any gentleman to bear the Arms of any other, or such as be not true armory; and as he ought according to the Law of Arms, he shall prohibit any merchant or any other, to put their names, marks, or devices, in escutcheons or shields, which belong and only appertain to gentlemen bearing Arms, and to none other. Item: he shall make diligent search if any bear Arms without authority or good right, and finding such, although they be true blazon, he shall prohibit them. The said King of Arms in his province hath full power and authority by the King's grant to give confirmation to all noblemen and gentlemen ignorant of their Arms, for the which he ought to have the fee belonging thereto. He hath authority to give Arms and crests to persons of ability, deserving of the Prince and Commonwealth, by reason of office, authority, wisdom, learning, good-manners, and sober government. They to have such grants by patent under the seal of the Office of the King at Arms, and to pay therefore the fees accustomed. Item: no gentleman or other may erect, or set up in any church, at funerals, either banners, standards, coats of Arms, helms, crests, swords, or any other hatchment, without the license of the said King at Arms of the province, or by allowance or permission of his Marshal, or deputy; because the Arms of the noble estate deceased, the day of his death, the place of his burial, his marriage and issues, ought to be taken and recorded in the Office of that King."

National Heraldry

The Heralds are six in number, and are styled *Windsor*, *Chester*, *Lancaster*, *Somerset*, *York*, and *Richmond*. Their duty is to preserve the national Heraldic records, to proclaim Peace and War, and the accession of Kings, and to attend at Court on State occasions. With the Kings of Arms, they form the Collegiate Chapter. The Pursuivants are a kind of pupils or probationers, who afterwards succeed to the higher offices. They are in number four, and are styled *Port cullis*, *Rouge Dragon*, *Blue Mantle*, and *Rouge Croix*.

Heralds.

Pursuivants.

The adoption of Crests into modern Heraldry is generally referred to the close of the XIIIth century. This reference is principally made on the authority of our Royal seals. But the matter is very uncertain, and, judging from analogy, it would seem more probable that the Crest had shared the fate of the shield, and descended uninterruptedly. Badges, or Devices, are the legitimate descendants of the ancient Heraldry, or rather they are the ancient system itself, proceeding collaterally with, but independently of, the other. Almost every Prince or Royal family in Europe has owned a distinguished Badge; nor has the practice been unknown in illustrious private families. This Badge has probably given rise to the use of supporters. On the Northern front of Westminster Hall we find the Arms of Richard II. resting on his well-known cognizance, the White Hart; and in a window of St. Olave's Church, Old Jewry, London, the same Prince's escutcheon is *supported* by two of these animals. There is, however, much probability in the conjecture that these fanciful additions were borrowed from the grotesque costumes worn by the Pages who carried, at Tournaments, the shields or banners of their Knights, and who were often habited in the skins of beasts, or in the guise of mythological and fictitious monsters. Supporters can only be used as hereditary devices, by Peers of the realm, unless especially granted by the Sovereign. Otherwise they can only be enjoyed by Knights of the several Orders, or by proxies to Princes of the Blood royal at installations, &c. Mottoes are by some authors supposed to be derived from the *cry d'armes* of the Normans, or *tesseræ* of the Romans. We have already seen, however, that they were actually in use among the early Greeks. Generally speaking, they were interpreters of the bearer's Device. Thus the Motto of Capaneus, before noticed, πρήσω πολιν, is an explanation of the torchbearer on his shield. And in modern examples, the Pole star of Montmorency is explained to be an emblem of constancy, by the Motto ἄπλανος; and the eagles in the arms of Rodney are symbols of undegenerating Nobility, as we learn from the Motto, *Non generant aquilæ columbas*. Some Mottoes allude rather to the name than to the escutcheon, as that of Bellasis, *Bonne et belle assez*; of Vernon, *Ver non semper viret*, &c. Sentences of this kind are by some authors called rather *Impresses* than Mottoes, but the distinction appears idle. Some Mottoes are, most probably, war-cries in the strictest sense.

Modern Crests.

Badges, or Devices.

Supporters

Mottoes.

II. *National Heraldry.*

National Heraldry, or the adoption of distinctive emblems by Civil communities, is of very remote anti-

Heraldry.

quity. The necessity of some distinguishing ensign in war appears to have suggested the use of these symbols, by which the valour, policy, or tutelary divinity of a State were in turn typified. The goat, which is made by Daniel* the emblem of the Macedonian Empire, was, it appears, the sign depicted on the Standard of that people, or, as we should now speak, the Arms of Macedonia. Justin, the abbreviator of Trogus Pompeius, informs us that Carenus, founder of the Empire of Macedon, when hesitating where to build his city, was commanded by an Oracle to observe the track of some goats:† and in commemoration of that circumstance, he adopted the goat as the Device of his new settlement. The ancient Standard of Persia was, as we learn from Xenophon, an eagle displayed on a shield.‡ Whether the Device were sculptured in relief on the shield after the *Heraldic* fashion, or represented as standing upon it, is not quite clear. This eagle was the Royal Badge of Persia from the time of Cyrus the Great§ to that of Artaxerxes Longimanus; perhaps longer. An eagle was also the *Arms* (if we may so speak) of Rome. The owl, the bird consecrated to Minerva, tutelary Goddess of Athens, was the adopted emblem of that State, and appears on the Athenian coins and medals. Corinth bore a Pegasus; Tyre, a palm tree; Antioch, a ram and a star; Nicomedia, a trireme and two turrets; Chios, a Sphinx. Further enumeration is unnecessary. But the universal prevalence of National Heraldry is evident from this circumstance, that the Turks and Persians, who have no personal Heraldry, as the Art is at present understood, possess what may be most strictly termed National Arms: those of the Turkish Empire being, in terms of modern blazonry, *azure*, an increscent *argent*; and those of Persia, *argent*, a sun orient, *proper*, behind a lion couchant, *or*. But the flags of these nations differ; for the Turkish flag is *vert*, three increscents *argent*, and the Persian, *or*, three decrescents *argent*. The crescent has been probably derived to the Turks from their Scythian ancestors; but the ancient bearing of Byzantium was a crescent. Many are of opinion that the *lunatæ peltæ*, ascribed by Virgil‖ to the Amazons, were charged with crescents; but it is very possible they were rather made in that form.

National Heraldry

We may have appeared to some readers to have transgressed the laws of just arrangement, in employing terms of Art without a previous definition of them. But, as the History of our subject seems entitled to consideration before we enter on its detail and application, we are sometimes compelled to forestal information which the reader, if he does not already possess it, must seek under our definitions.

History of the Arms of France,

The Arms of France are undoubtedly of great antiquity. We have seen what evidence there is for their existence during the Merovingian and Carlovingian dynasties. They were, certainly, the same Device thrice repeated; although what that Device originally was, cannot be determined. The discordance of opinions on this subject, however, is evidence of the early use of these Arms. And this belief derives confirmation from a similar discordance on the subject of their *colours*; a circumstance, we know, indifferent in ancient Heraldry, but in modern integral and essential. Paulus Emilius blazons the Arms of France, *argent*, three diadems, *gules*;* "others say they bear three toads *sable* in a field *vert*;"† which, if ever they did, it must have been before the existence of the present rules; as this would now be false Heraldry, for reasons which will be hereafter specified. M. de Foncemagne, in a Treatise on this subject in the *Mémoires de l'Académie des Inscriptions*, vol. xx. cites, beside the above opinions, other testimonies, respectively stating that the Arms of France were crescents, water-flags, bees, lilies, and spear-heads. The *fleur-de-lys* became the settled Arms of France in the reign of Louis VII.: it is said that they are the flowers which grow on the sides of the river Lys, (*Iris pseudacorus*, Linn.) which separated Artois and France from Flanders after the marriage of Philip Augustus with Isabella of Hainault. But it is somewhat curious that when the *nature* of the devices became determinate, their number, which had ever been constant, became indefinite. In the reign of our Richard II., however, we find them borne generally, *azure*, three fleurs-de-lys, *or*, a change effected by Charles VI., but not always attended to subsequently. There is an ingenious argument used to prove the *fleur-de-lys* a lily, which may find credit with such as are not sufficiently incredulous to disbelieve the Salic constitutions. The motto of France is *Neque laborant neque nent*; in allusion, of course, to lilies; which lilies, *of course also*, must have been adopted to typify the impossibility of female sway in France!

The Arms of Mecklenburg claim even an earlier origin, and, considering the undoubted use of Devices of this kind by ancient States, and the similar original of many, the legend concerning them is not improbable. We are told that Artyrius, King of the Heruli, having started as a soldier of fortune under Alexander of Macedon, sailed in a ship bearing for its device, or sign, a bull's head; and that, ultimately, settling in the States of Mecklenburg, he assumed this as his cognizance. Hence the Arms of Mecklenburg are at present, *or*, a bull's head *gardant*, *sable*, horned and ringed through the nose *argent*, and ducally crowned *gules*. We may observe, that these are also the Arms of Rostock, except that the bull is not *gardant*.

Germany, Poland, and Russia

A like traditional legend obtains concerning the Arms of Russia, Germany, and Poland, the last now lost, the second merged in those of Austria. It is said that the eagles taken from the three legions of Varus destroyed by the Germans, fell respectively into the hands of the native Germans and their Sarmatian and Sclavonian auxiliaries; which nations, accordingly, adopted each of them an eagle for their ensign.‡

England

The Arms of England reach beyond any assignable date after the conversion of the Saxons. Each Heptarchy is supposed to have had its peculiar ensign; but the most prevalent was a cross, used probably in commemoration of their conversion. To this cross, Edgar

* *Dan* ch. viii ver. 5.

† Just vii 1.

‡ τὸ βασίλειον σημεῖον ὅραν ἔφασαν, ἀετὸν τινα χρυσοῦν ἐπὶ πίλτης, ἐπιξύλου διατεταμένον. De Cyri *Exped.* lib. i *sub finem.*

§ ἦν δ' αὐτῷ τὸ σημεῖον ἀετὸς χρυσοῦς ἐπὶ δόρατος μακροῦ διατεταμένος. καὶ νῦν δὲ ἔτι τοῦτο τὸ σημεῖον τῶν Περσῶν βασιλεῖ διαμένει. De Cyri *Instit.* lib. vii. *circa init.*

‖ *Æn.* i. 490. and xi. 660

* *Ap.* Gwillim, ch. i.

† *Ibid.*

‡ Cuspinian's version of the story somewhat differs. *Tres legiones obtruncatæ, signa, et aquilæ duæ a Germanis raptæ, quas hodiè possidemus. Non enim biceps est aquila, quod imperitum vulgus credit; sed duæ simul, quarum altera alteram expansis alis obtegit. Tertiam signifer legionis III. abstulit, paludeque demersit, ne in hostium manus veniret. Alioqui III. haberemus aquilas in insignibus imperii. Vit. August*

Heraldry. is said to have added four martlets, and Edward the Confessor one. The Arms were blazoned in the time of Richard II., (who impaled them with the then received Arms of England,) *azure*, a cross *flory*, between five martlets, *or*. These Arms were never used by the Norman Princes, and rarely by succeeding Sovereigns, never without the Arms of Normandy, which were now become those of England. Yet they were not allowed to be borne by a subject; witness the Trials of Thomas Duke of Norfolk, and his son Henry Earl of Surrey, in the reign of Henry VIII., for High Treason, where a principal part of the accusation was the assumption of these Arms.

The lion and the cross are very prevalent in National Heraldry, and this interesting portion of Heraldic History will derive considerable light from the explanation of those symbols. The former was naturally adopted in a rude state of Society, where courage and military superiority are always the first, if not the only, virtues. The latter as naturally became the favourite Device of those nations who had been recently converted to Christianity or had distinguished themselves in the Holy wars. Constantine set the example by mingling his *labarum* with the eagles of Julius and Augustus. The fanciful varieties, both in number and position, which we find in these emblems, are to be attributed to the necessity of international distinctions. And the same may be said of colour, when this circumstance came to hold an essential office in the shield. When, in the Crusades, the armies of whole nations bore the cross, it was necessary to distinguish them by some variation of form or colour, and this, we know, did accordingly take place. This remark on lions and crosses will explain the origin of many national Arms without further observation; as those of Scotland,* of Normandy, afterwards adopted for England, of the late Republic of Venice, of the Republic of Geneva, of Denmark, of Norway, of Sardinia, besides a variety of inferior States. Crowns and swords, for a similar reason, would naturally be favourite emblems, as the ensigns of power and force; and their positions, numbers, and colours would be affected by the same circumstances as other devices. Hence we may explain the Arms of Sweden, of Saxony, and several others. It is curious that all these emblems (with the very natural exception of the sword) are to be found in the Arms of the Universities of Cambridge and Oxford. The cross, Gospel, and lions in the former are significant of boldly contending for the Faith; the crowns and Psalter in the latter have a like allusion to the supremacy of Religion.

eland. Three principal *Devices* have been assigned for Ireland; all, doubtless, of high antiquity. A harp, a shamrock, and a hart issuant from a castle. The first of these has been retained as the Arms, the last is sometimes used as the crest. The second appears in the Badges of the Order of St. Patrick. The adoption of the two former may be easily explained from national characteristics; the latter is not so easily accounted for. Other Arms have been assigned for Ireland; for which see a very comprehensive note in Willement's *Regal Heraldry*, p. 81. Blazonry.

National Arms are, in some instances, like personal, expressions of a name. Thus the lions of Leon and the castles of Castile are evidently mere pictured words. But the Arms of the United Provinces are, perhaps, the most eloquent of all, wherein a lion grasps in his paw seven arrows. The allusion is too obvious and beautiful to need explanation. Leon, Castile, and the United Provinces.

III. *Arms of Bodies Corporate.*

The origin and history of the Arms of Bodies Corporate very much resemble those of nations, as nations are only larger Societies. Crosses, lions, swords, and crowns abound in all. Some represent the character of the Society, as those of Guilds and Companies. Some the local situation, as those of Cities; some have an affinity with the name; and some are honourable grants. The dagger in the Arms of the City of London is of the latter nature, being added in honour of Sir William of Walworth, Lord Mayor, who killed the rebel Tyler. The Arms of the Cinque Ports afford a curious combination: lions terminating in ships; thus uniting a favourite with a significant device, and implying, apparently, that the strength of that confederacy is in its shipping.

Principles of the System.

Such is the History of that curious and interesting theory, the present refined principles of which we proceed to deliver. These may be divided into I. *Blazonry*, and II. *Marshalling*.

I. *Blazonry* is the art of expressing in due and significant language, a coat of Arms, so that its colours and forms may be as obvious in description as in actual delineation. I. Blazonry.

Although the terms "*coat* of Arms," and "*coat* armour," are commonly applied by Heralds to personal and family Devices, from the circumstance of these being embroidered on the surcoat, or covering of the armour, yet as the same were also depicted on the shield, on which they could be more evidently exhibited, the shield has always been selected as the most convenient vehicle of the Arms; and the form of the shield usually adopted is a modification of that which was used by the Normans. Fig. 1 is the true Norman shield; the others are the modification of which we speak, ordinarily in use in the times of the Lancaster and York dynasties, and more convenient, on the score of amplitude, for the exhibition of Arms. Every shield has its distinguishing *points*; and as the shield never varies so considerably as to render their positions importantly different, fig. 1 will afford a clear notion of the theory. Points of the shield.

"In the enthusiastic Ages of Chivalry, every object which related to the profession of arms was exalted and dignified. The armour was so closely united with the body, that it seemed to make a part of it; and an insult offered to it would have been resented with as much warmth of revenge as if the warrior himself had been treacherously wounded. Hence it arose that the shield was considered as the man himself; and its parts were denominated accordingly."* Thus the side towards the left hand is called the *dexter* side, and that towards the right hand the *sinister* side. The upper part is called the *chief* (*chef*, head.) The points in the chief are A, *dex-*

* The tressure flory is said to have been added to the Arms of Scotland by Charlemagne, on the occasion of his League with Achaïus. The sentiment symbolized by this addition was, that the lilies of France should always protect the lion of Scotland. It is unnecessary to insist *much* on the exact degree of credibility which belongs to this story; but it affords no bad idea of the significance of Heraldic emblems.

* *Encyc. Lond.* Art. *Heraldry*.

Heraldry. *ter chief;* B, *middle chief;* C, *sinister chief;* D is the *honour point*, representing the breast by its highest chivalrous virtue; E is called the *fess point*, bisecting the straight line which joins the middle chief and extremity of the shield. It is so called from the *fess*, which it also bisects, and which represents the scarf or belt (*fascia*) worn round the middle; F is the *nombril* (navel) *point;* G, the *dexter base;* H, the *middle base;* and I, the *sinister base.*

Field. Having determined the points of the escutcheon, the student's next care is to determine the *field*, by which name Heralds designate the tincture or combination of tinctures forming the ground on which the Device is delineated. These are of three descriptions, *metals*, *colours*, and *furs*. They are all equally expressed by colours in painting; but in engraving and sculpture, an ingenious mode of distinguishing them was invented by Silvestro di Santa Petra, an author of the XVIIth century, by the position of lines, which is now universally adopted.

Metals. Fig. 2 exhibits the metals. That on the dexter side
Or. is *Or*, (Fr. *or*,) gold. It is represented in colouring by liquid gold, gamboge, chrome, or king's yellow; shading, burnt sienna: in engraving by a sprinkling of equidistant dots. *Or* alone is said to have been formerly the Arms of Arragon. That on the dexter side is
Argent. *argent*, (Fr. *argent*, silver,) expressed in colouring by a white, and in engraving and sculpture by a plain surface. Shading, Indian ink or lamp black.

Colours. Fig. 3 is an escutcheon containing the *colours*. Du Cange is of opinion, that all the tinctures were originally furs;* and though this belief has met with little countenance from modern Heralds, much may be said in its favour. From what has been cited from Tacitus, it appears that the Northern warriors used garments of fur; and the surcoat often supplied a field to the escutcheon. Besides, those shields which were not composed of metal were generally covered with skins; and even those which were so, had, not unfrequently, a guarding of the same material. In our enumeration, therefore, of the tinctures we should deem it unjust to the question to suppress what may be advanced in support of this opinion.

Gules. No. 1 is *gules*, red, expressed in colouring by vermilion; shading, lake; in engraving by vertical lines. It is generally derived from the French *gueule*, the mouth of an animal. But Du Cange assigns a much more probable etymology. He quotes from St. Bernard (*Ep.* 42.) the following passage, *Horreant et murium rubricatas pelliculas, quas* Gulas *vocant, manibus circumdare sacratis.* And Brunon, a still earlier writer, thus mentions these sorts of furs in his *History of the War of Saxony:*† *Unus ex illis cujusdam nobilis crusinam* gulis *ornatam quasi furtim præcidit. Crusina* is a Saxon word for a fur dress. Somner, in his *Glossary*, gives *Crusene, tunica e ferinis pellibus.* Le Reclus de Molicus, in his MS. *Paternoster*, has these lines: Blazonry

Houches, manteaux, chappes fourrées,
De Sobelines engoulées.

From these authorities the derivation of the word *gules* is tolerably clear; and scarcely less clear is it that the gules was originally a fur. According to Gwillim, Eumenius de la Breet, a Knight who accompanied Edward I. in his Scottish expedition, bore this colour alone as his Arms.

No. 2 is *azure*, sky blue, from the French *azur*, Azure.
represented in colours by verditer, smalt, or ultramarine; shading, indigo; and in engraving by horizontal lines.

No. 3 is *sable*, black, expressed in colouring by lamp Sable.
or ivory black; shading, same with gum; and in engraving by vertical and horizontal lines. It is commonly derived from the French *sable*, gravel; but the inapplicability of the derivation has been evident to those who have made and approved it. It seems almost obvious that this tincture was originally the fur of the sable. And to this effect is the express testimony of Spelman. (*Aspilog.* p. 76.) *Sæpenumerò pelles quædam quibus alias ad honorem et insignia inducbantur proceres*, colorem *clypeis subministrant, armellinorum et* zebellinorum.

No. 4 is *vert*, green, (Fr. *verd*, anciently *vert*,) Vert.
expressed in colouring by a mixture of verditer and gamboge; shading, gamboge and indigo; and in engraving by diagonal lines from the dexter to the sinister side of the escutcheon.

No. 5 is *purpure*, from the French *pourpre*, purple, Purpure.
expressed in colouring by royal purple; shading, same with gum; and in engraving by diagonal lines from the sinister to the dexter side of the escutcheon. This colour so seldom enters coats that some Heralds have denied it a place among the Heraldic tinctures. This circumstance Du Cange attributes to its derivation from a fur called *pourpre*, of a coarse and humble kind, and seldom worn by Knights or distinguished persons.

No. 6 is *murry*, or *sanguine*, a colour scarcely ever Sanguine.
used in England, but occasionally met with in foreign Arms, and by some ascribed to the Arms of Wales. It is a dark red, expressed in engraving by opposite diagonal lines, and is reckoned one of the *stainand* or dishonourable colours; as is also

No. 7, *tenny*, *tawny*, or *brusk*, a colour compounded Tenny.
of red and yellow, and expressed in engraving by diagonal and horizontal lines.

These are the usual terms of the Heraldic colours. But invention, which is the very essence of this theory, has not limited itself to these. The annexed Table, borrowed from the very valuable Essay on this subject in the *Encyclopædia Londinensis*, is a comprehensive view of the various denominations by which the Heraldic colours have been blazoned.

* First Dissertation on Juinville's *Chronicle.*
† *Res. German. Freher*, tom. i. p. 135.

Heraldry. Blazonry.

Names.	Colours.	Stones	Planets.	Planets.	Metals	Latin Names.	Abbreviations.	Signs of the Zodiac.	Months.	Days of Week.	Elements.	Seasons and Time of Day.	Ages.	Tempers.	Virtues.	Flowers.	Numb.
OR.	Yellow	Topaz	Sol.	☉	Gold.	Aureus.	O.	Leo.	July.	Sunday	Light.	Noon.	Adolescence.	Blithe.	Fortitude.	Heliotrope.	1.3
AR. GENT.	White.	Pearl.	Luna.	☽	Silver.	Argentus	Ar.	Cancer.	June.	Monday.	Water.	Morning	Infancy.	Phlegmatic.	Hope.	Lily.	2.12
GULES.	Red.	Ruby.	Mars.	♂	Iron.	Ruber.	g.	Aries and Scurpio.	March and October.	Tuesday	Fire.	Autumn.	Manhood.	Choleric.	Charity.	Rose.	10
AZURE.	Blue.	Sapphire.	Jupiter.	♃	Tin.	Cæruleus.	Az.-b.	Taurus and Libra.	April and September.	Thursday.	Air.	Summer.	Childhood.	Sanguine	Justice.	Blue Bell	4.9
VERT.	Green.	Emerald.	Venus.	♀	Copper.	Viridis.	Vt.	Gemini and Virgo.	May and August.	Friday.	Life.	Spring.	Youth.	Bilious.	Strength.	The Field	6.11
PURPURE.	Purple	Amethyst.	Mercury.	☿	Quicksilver.	Purpureus.	Pur.	Sagittarius and Pisces.	November and February.	Wednesday.	Thunderbolt.	Evening.	Old Age.	Serious.	Temperance.	Iris.	7
SABLE.	Black.	Diamond.	Saturn	♄	Lead.	Niger.	S.	Capricorn and Aquarius	December and January.	Saturday.	Earth.	Winter and Night.	Decrepitude.	Melancholy.	Prudence.	Scabiosa	5.8

None of these are in any credit except the Planets and Jewels; the former being attributed to the coat-armour of Princes, the latter to that of the Nobility. But even this practice is by no means general, and is not sanctioned by the adoption of the College of Arms. In the coats of traitors or defamed persons, it is usual to blazon by the natural metals and colours, as gold, silver, red, &c.

Furs. Ermine. Figures 4 and 5 contain the furs. No. 1 is *ermine*. It represents the skin of that animal, (*Mus Armenius*,) which is perfectly white,* spotted with tails of the same creature, which are black. The ermine is a fur of great dignity, being generally used in the robes of Royalty and Nobility. Its beauty and rarity have procured it high estimation; and some writers consider it an emblem of purity, the ermine being reported to prefer death to soiling its delicate fur. Each row of spots is Heraldically termed a *timber*, and the lower parts of spots are termed *muschetors*. Ermine alone is the coat-armour of the Dukedom of Brittany.

Ermines. No. 2 is called *ermines*. It is the inversion of ermine. Here the fur is black spotted with white. The exact application of the word is not clear.

Pean. No. 3 is *pean*. It resembles the last, except that for white we have gold. The word is perhaps derived from the French *paon*, a Peacock, the glitter of whose plumage it somewhat resembles.

Erminois. No. 4 is *erminois*. It is the same as the ermine, except that the white is exchanged for gold. It signifies erminelike, a character which it aptly sustains.

Vair. No. 5 is *vair*. It is always white and blue, unless otherwise specified in blazon. The pattern, somewhat resembling wine glasses, has led some etymologists to derive the term from the French *verre*; but it is much more probably derived from the Latin *varius*. It is supposed to represent the skin of a small spotted squirrel. Vair of gold and blue is the coat armour of the French family of De Rochfort, and vair of ermine and red is that of the Greslies of Derbyshire. A large kind of vair is by some Heralds called *beffroy*, and the family of Bauffremont bears beffroy gold and red. When the cups are set point to point, as in No. 8, the bearing is called *Counter-vair*. Beffroy. Counter-vair.

No. 6 represents a fur to which many names have been given, *vairy cuppy*, *vairy tassy*, *meire*, *potent-counterpotent*, and *potency*. *Vairy* appears to be derived through *varié* from *variatus*, as *vair* from *varius*. *Cuppy* and *tassy* are from the French *coupe* and *tasse*, each word signifying a cup, which the pattern very slenderly imitates. The original of *meire* is not so plain. *Potent* is the old name for a crutch, on account of the *power* which it gives to its owner; and certainly the pattern of this fur very much resembles the heads of crutches. Potency.

No. 7 is *erminites*, a fur only differing from ermine in respect of the side hairs of the timberings, which are red instead of black. Erminites

When more colours than two are combined in the pattern of vair, then results the fur called vairy. It is derived from the French *varié*. It is said that ancient Heralds made no distinction between vair and vairy, but blazoned them both vair, and then enumerated the colours. Whenever the distinction arose, it was certainly beneficial, as it simplified the language of blazonry by a very pertinent discrimination. When the colours are white, red, gold, and black, it will suffice to blazon vairy only; where they differ from this arrangement, the difference must be specified. But this fur is very unusual. Vairy.

These are the only names applied to *fields*; except those compound coats, &c., which will hereafter be noticed. Natural objects, in addition to these, are denominated *proper*, when they are represented in the colours which belong to them; the same is the case with chimerical objects when represented in conventional colours.

After the statement of the field, the next point of blazonry is the definition of the *charge*, or object delineated on the field. All the stores of Science, Nature, and Imagination have been laid under contribution to furnish forth this department of the Art. We shall not, however, imitate Charge.

* We say white, black, &c., not *argent*, *sable*, &c., as we observe to have been done by some approved writers; for we are now discussing the subject of furs, which cannot be composed of metals or colours. Even Gwillim, who has occasionally fallen into this unheraldlike practice, has himself condemned it, speaking of the white lining of mantlings:—"Being a doubling, it is no offence, saith Christine de Pia, to call it *white*, because therein it is to be understood onely as a furre of skin." cap. iv. sec. 1.

Heraldry. some writers on this subject, who crowd their Works with the blazon of a great number of charges, unnecessary, because untechnical. Many charges must be obvious, as soon as mentioned, to the mere unheraldic reader, because they are unconnected with the language of the Art. Thus it would be unnecessary to notice the Arms of Milveton, which are *azure*, three millstones *argent*, enough having been already said to make such coat-armour as perfectly apparent to the mind, as its representation could make it to the eye. We shall prefer to confine ourselves to such charges as are either strictly the production and property of Heraldry, or which have become connected with its language from the mode of their position on the escutcheon. It is to be observed, in respect of charges in general, that metal must never be laid upon metal, colour upon colour, or fur upon fur. Thus *azure*, a swan *gules*, would be false armoury. This rule is not entirely without exceptions, but they are so few, or so slightly authenticated, that they do not affect its general validity. But if the Heraldic colour of a charge be *proper*, then it may be laid on a homogeneous metal or tincture. Thus *sable*, a heart *proper*, is admissible, (see fig. 21,) though the proper colour of the heart be the same with the Heraldic *gules*. But though not unclassical, such instances are rare. Charges are said to be *counterchanged* when the field is of two metals or tinctures, and the parts of the charge are of the opposite metal or tincture. And they are said to be *umbrated* or *adumbrated*, when they are simply shaded on the field without any difference of colour.*

Counterchanged. Adumbrated.

When the field is *gritty*, *i. e.* contains equal proportions of metal and tincture, the charge may be of either; and, in all cases, if a charge intervene between any point of the field and any point of another charge, the latter may be homogeneous with the field.

In colouring, the sides and base of the shield are generally supposed to lie in the plane of the paper, and the middle chief somewhat above it. The charge is supposed to be in high relief, with the light falling from the dexter chief. In blazoning, the field is mentioned first, afterwards the charge. Sometimes a charge itself is charged: in which case the charge nearest the field should be mentioned first. But where several charges lie in the same plane, they must be mentioned in the most compendious order, whatever that may be; for conciseness is a very material quality in blazonry. *Cæteris paribus*, the charge nearest the fess point should be mentioned first. "You must use no iteration," (says Gwillim,) "or repetition of words in blazoning of one coat, especially of any of these four words, *viz. of, or, and, with.* For the doubling of any of these is counted a great fault, insomuch as the offender herein is deemed unworthy to blazon a coat armour." Despite the anathema of this venerable authority, it will not always be possible to preserve this rule consistently with perspicuity. But it may serve for general observation.

Ordinaries.

The simplest description of Heraldic charges are the ordinaries. An *ordinary* is a portion of the escutcheon comprised within straight or other lines. It should comprise at least one-fifth of the whole shield: otherwise it would be called a *subordinary*. But this distinction is neither very generally employed, very regularly defined, nor very intrinsically important. Beside the straight line, most usually employed as the boundary of the ordinary, the following deviations are in use. Blazonry.

XII. *Ingrailed*, from the French *engrêler*, from *grêle*, hail. It represents the notches made by hailstones.

XIII. *Invected*, the reverse of ingrailed. *Ab invehendo; quòd* invehuntur *puncta figuræ.*

XIV. *Wavy*, or *Undy*, representing the surface of the sea. If the ordinary has two sides the elevations and depressions are alternately opposite: which rule holds in most of these variations.

XV. *Nebuly*, from the Latin *nebula*, a cloud, which this variation somewhat resembles.

XVI. *Raguly*, (ragged, or rugged,) imitative of the trunk of a tree with its branches lopped. A tree so represented is said in Heraldry to be *raguled.*

XVII. *Rayonny*, from the French *rayon*, a ray.

XVIII. *Indented*, from *in*, and *dens*, a tooth. It resembles closely the teeth of a saw. It is also called *enrased*, *viury*, *lentally*, and *serrated.*

XIX. *Dancetty* is a row of points, arranged like those in *indented*, but larger, and never exceeding three. Its derivation is the same as the former, but through the French *denché.*

XX. *Embattled*, or *Crenelly*, representing the battlements of a fortress. The French verb *creneler* signifies to notch, or embattle. When the battlements are alternate to each other, the ordinary is said to be *counter-embattled;* when opposite, it is called *bretessed*, (buttressed.)

XXI. *Battled embattled* is where one row of battlements stands on another.

XXII. *Palissy*, or *Urdy*, is an imitation of the *palisading* of a trench.

XXIII. *Angled* is the same as *embattled*, but on a larger scale. It presents only one right angle.

XXIV. *Bevelled* differs from *angled* in the direction of the angle, which is *acute.*

XXV. *Escartely* differs from angled by presenting only one rampart instead of one angle.

XXVI. *Nowy*, (*nœué*,) composed of knots. This variation is very seldom used.

XXVII. *Dovetail*, a term which is self-expressive.

XXVIII. *Potency*, a series of crutch heads. The meaning of the term has been already explained.

When an ordinary has two sides, and is only variated on one, if that one be the upper side, the ordinary is said to be *superingrailed*, *superinvected*, &c.; but if it be the under, then it is said to be *subingrailed*, *subinvected*, &c. If the ordinary be *generally* curved, it is said to be *arrondy*, (*arrondi*, rounded, Fr.) or *archy;* if one side of the ordinary be curved inward, it is called *inver*, *concave*, or *champain;* when outward, *chapourned*, or *convex.*

The first and simplest ordinary appears to be the *pale.* Pale.
This ordinary is bounded by two vertical lines, at equal distances from the sides of the escutcheon, of which it encloses one-third. When it is charged, the practice is to make it a little wider; but Gwillim condemns the theory: "the content of the Pale must not be inlarged, whether it be charged or not."* It seldom bears more than three charges. The word is obviously derived from

* "There be certan nobuls and gentilmen in Englonde the wich bere shadys diverse in theyr arms, as lyon, antlop and other. And men say that suche personys as beere theyr umbrated armys had there progenitoris beryng the same not umbrated but hole. But the possessionis and the patrimonys descendid to other men. Then the nevoys or kynsmen levyng in goode hoope and trustyng to have the possessions of their progenitoris, beer their arms umbrated, all oder differs aforesaid leving."—*Book of St. Albans.*

* *Display*, ch. v. sec. 2.

Heraldry. *palŭs*, a stake, (whence *palisade*,) which the ordinary entirely resembles. *Palus*, a marsh, and the *pallium* of the Priest, it in no respect accords with. The motto which accompanies the arms of Beauvais in Picardy, (Fig. 6 exemplifying the Pale,) "Palus *ut hic semper constans et firma manebo*," seems to be quite decisive.

Blazonry.

Pallet. The diminutives of the pale are the *pallet* (*pallette*, small pale, Fr.) and the *endorse*. The pallet is one-half of the pale, when borne by itself; sometimes, however, as many as three pallets are borne on the shield; when the content of the ordinary is, of course, diminished. Of this we have an example in fig. 7. *Or*, three pallets wavy, *gules*, for the City of Mechlin.

Endorse. The *endorse*, or *verget*, contains one-eighth of the pale. The most usual bearing of this ordinary is together with the pale, an endorse being on each side. And this is evidently the derivation of the word, (*in dorso*,) implying that the pale is *backed* by the endorses. Leigh affirms, indeed, that the endorse cannot be otherwise borne; for which he is reprehended by Ferne, who adduces the example of the Arms of Flanders and Tyrol, borne in the Arms of Philip, husband of our Mary I. But as these Arms are painted on a window of the library at Lambeth Palace, they contain no endorse at all. We shall give an instance of an endorse borne singly. The pallet and endorse are never charged. They are seldom composed of furs, and never of vair. Fig. 8 is the Arms of Bellasius, a Norman Chief, sent by William I. to conquer the Isle of Ely. From him the Bellasis family descend, and quarter his Arms with their more recent bearings. The Arms are blazoned, *argent, a pale engrailed*, endorsed, *sable*.

Fig. 9 is an instance of the endorse singly borne, and is besides a rare and curious piece of blazonry. It represents the Arms of Sublet de Noyers, a French family. *Azure*, on a pale walled *argent*, an endorse *sable*.

aly. From this ordinary is derived the term *paly*, applied to vertical equidistant lines, the spaces between being filled with alternate heterogeneous tinctures. The metal usually takes precedence, although this is not uniformly the case. The several spaces are called *pieces*, and the coat is denominated from the number of *pieces*. Fig. 10 is paly of eight pieces, (or, as it is sometimes expressed, paly of eight,) *or* and *gules*, for the Kingdom of Arragon. All the divisions are supposed to lie in the plane of the escutcheon, and must not, therefore, be shaded.

arty per le. When a coat is bisected by a vertical line, and the fields comprised in the halves differ, it is said to be *party* (*parti*, Fr. divided) *per pale*; or simply, *per pale*; thus fig. 2 is *party per pale*, (or, *per pale*,) *or* and *argent*. This bearing was anciently called *bebally*. It is to be observed, however, that "partys" seldom consist of homogeneous tinctures, *viz.* colour and colour, metal and metal, &c.; ermine and ermines are sometimes found. And if each division comprise a separate coat, the coats are said to be *impaled*. In both cases the plane is supposed to be the same. Party per pale, *argent* and *gules*, is the bearing of Waldegrave.

npale- ent.

alewise When any charge of greater length than breadth lies in the direction of the *pale*, it is said to lie *in pale*, *palewise*, or *paleways*. Thus fig. 11, the Arms of the championship of England, are blazoned, *argent*, a sword *sable*, erect *palewise*. And the same term is applied to any number of charges not very long, in the same field, arranged in the direction of the pale. The Arms of the See of Bristol (fig. 12) are *sable*, three crowns palewise, *or*.

Fess. The derivation of the *fess* (*fascia*) has been already alluded to. It represents a military belt or girdle passing straight round the middle of the body. It is bounded by two horizontal lines, equally distant from the *fess point*, or centre of the escutcheon, of which it contains one-third. *Gules*, a fess *argent*, (fig. 13,) are the Arms of the Electorate of Austria. The fess is sometimes *couped*, (*coupé*, Fr. cut,) not reaching to the sides of the escutcheon, as in fig. 14, the Arms of the family of Stratford. *Gules*, a fess couped, *or*, between three trestles, *proper*. This is also called a fess *humetty*. When more than one is borne in a shield, they are termed *copper cakes*.

Bar. The diminutives of the fess are the *bar*, the *closet*, and the *barulet*. The first of these contains the fifth part of the field. If there be but one of these in the escutcheon, it must occupy the place of the fess; if two, they must be so placed that the field may be exactly divided into five equal parts, as in fig. 15, the Arms of Harcourt, *gules*, two bars, *or*. The derivation of the word *bar* is obvious.

Closet. The *closet* contains half the bar. It appears to be derived from *claudo*, to shut, and to represent a bar used to shut or close gates or doors. (*claustrum*.) Five closets may be used in one field. Or, perhaps, from the fess being sometimes *enclosed* by two of them, *quòd* claudunt *latus fasciæ*. Fig. 16, *azure*, four closets, *or*, is the Arms of the city of Salisbury.

Barulet. The *barulet* contains one-fourth of the bar. It is generally used with the fess, one on each side of that ordinary, in which case the fess is said to be *cotised*. Some restrict this office to the closet, and, perhaps, more properly. The derivation of the term *cotise* will be given presently. Sometimes they are found in groups of two each, when they are called *bars gemelles*, and the two are reckoned one bar. Fig. 17 exhibits this ordinary in the Arms of Barry, of which family is Lord Barrymore, *viz. argent*, three bars gemelles, *gules*. Indeed, the terms closet and barulet are scarcely ever employed, but the word *bar* uniformly used instead.

Barry. When the field is divided by horizontal lines into four, six, eight, ten, or twelve equal parts, the intermediate spaces being filled with alternate tinctures, the bearing is called *barry*, and denominated, like paly, from the number of spaces. Barry should not be shaded, for a similar reason. Barry of eight, *argent* and *gules*, are the Arms of the Kingdom of Hungary. See fig. 18.

Party per fess. When a coat is divided by a horizontal line passing through the fess point, it is said to be *per fess*, or *party per fess*. This bearing was anciently termed *counter-treviled*. Fig. 19, per fess, *sable* and *argent*, represents the Arms of the Canton of Friburg in Swisserland.

Fesswise. When a charge, having length, covers the fess point in an horizontal position, it is said to lie *in fess*, *fesswise*, or *fessways*, as in fig. 20, the Arms of the University of Oxford, *azure*, a book expanded *fesswise*, *argent*, having seven labels on the dexter side, bearing seals *or*, and inscribed *Dominus illuminatio mea*, between three crowns of the third. The same expressions are applied to any number of charges lying in the same direction.

Barwise. When several charges having length are ranged one above another horizontally, they are said to be placed *barwise*.

Chief. When the fess is removed to the upper part of the escutcheon, it is called a *chief*, for a reason already

Heraldry.

assigned. This ordinary, in latter times especially, is one of honourable augmentation. Fig. 21, the Arms of the Friars of St. Augustine, is *argent*, on a chief *sable*, a heart inflamed at the top, *proper*. The chief is sometimes surmounted by another, which, of course, is smaller.

Fillet.

The chief has one diminutive, the fillet; its size is one-fourth of the chief, of which it occupies the lowest part. Fig. 22, the Arms of Cape, *sable*, a chief *or*, in the nether part thereof a fillet *argent*.

Party per chief.

When a straight line coincident with the direction of the base of a chief divides the escutcheon, it is said to be party per chief. Party per chief, *gules* and *or*, are the Arms of Camoyse. See fig. 23.

In chief

Charges in the situation of the chief are said to be in chief. Thus, in fig. 20, the uppermost crowns are said to be *in chief*, and the other *in base*.

Combinations of the pale and fess.

There is sometimes found a bearing, of which we have given an instance in fig. 24, the Arms of the Girdlers of London, and which is ordinarily blazoned thus: party per fess, *azure* and *or*, on a pale counterchanged, between two gridirons of the second in chief, the handles erect, another in like manner. But as the supposed pale is *never shaded*, and as no reason can be assigned for this, it seems more correct to blazon the coat, paly of three, *azure* and *or*, per fess counterchanged, three gridirons of the second.

Quarterly.

When the shield is party per pale and fess both, it is said to be divided *quarterly*; and each of the divisions

Quarter.

is called a *quarter*. Fig. 4 and 5 are divided quarterly. The first of these would be blazoned, quarterly, first, *ermine*, second, *ermines*, third, *erminois*, fourth, *pean*. When the coat is simply parted into two colours, per pale and fess, it is usual to blazon, quarterly, naming the two tinctures, that in the dexter chief first, as in the Arms of Stanhope, quarterly, *ermine* and *gules*. A *quarter* is sometimes borne by itself on the dexter chief, as in the Arms of Stanton, vair, *argent* and *sable*, a quarter *gules*. (Fig. 25.) It is held to be a very honourable bearing. It is generally charged with a portion of National Arms, granted in consequence of some service: and some Heralds have held that it should not be granted to a person of lower dignity than a Baron. When the bearings of several families are marshalled in the same escutcheon, in compartments formed by horizontal and vertical lines, they are said to be *quartered*, and the

Quarterings

compartments are termed *quarterings*. The laws of these quarterings will be noticed when we come to treat of marshalling.*

Canton.

The quarter has a diminutive called the *canton*. This term in French signifies a corner. The proportion of the canton to the field is not determined, only it must not occupy one-fourth. This, like the quarter, is a very honourable bearing, and is supposed to represent the banner given by the Sovereign to the Knight banneret. The Arms of Shirley, fig. 26, are paly of six, *or* and *azure*, a canton *ermine*. Sometimes the canton is borne in the sinister chief, and then it must be specified, a canton sinister.

Checky.

When the divisions produced by several vertical and horizontal lines are filled alternately with heterogeneous tinctures, the result is termed checky, from *échec*, Fr.

* "If you are to draw a coat which is blazoned or charged with three similar figures two and one, besides the quarter; as for example, argent, three torteauxes, a quarter azure; yet, although in the blazon you mention three, you must show but two in the drawing, the third being supposed to be under the quarter." Edmondson.

Fig. 27. Checky, *argent* and *gules*, is the Arms of Croatia, ensigned with the crown of the Kingdom of Hungary. But two rows of this by themselves are termed *countercompony*, and one row *compony*. When one whole shield is checky of nine, it is called by some Heraldic writers *a cross perforated*; but this is a very incorrect expression, since the cross is an ordinary, whereas the whole of this bearing is in the plane of the escutcheon. This bearing, *or* and *azure*, forms the Arms of the Republic of Geneva. Blazonry.

Cross.

When the straight lines drawn palewise and fesswise enclose the fifth of the shield, (or the third if charged,) they form an ordinary which is called a *cross*. When this cross is *gules*, it is called the cross of St. George. *Argent*, a St. George's cross, was impaled by Charles I. with the Arms of England, and was employed afterwards as the Arms of the Commonwealth. The same is now the bearing of the Republic of Genoa, which is surmounted with the crown of Corsica. See it in fig. 28.

Voiding.

The cross and some other ordinaries are subject to what is termed *voiding*; the inner part being taken out, and nothing left but a narrow border. When the extremities of an ordinary *not bounded by the escutcheon*, are also removed, the ordinary is said to be *voided throughout*. Heralds very justly condemn the expression "voided of the field," as it cannot really be voided of any thing else; and if the colour be different, they consider such the colour of the ordinary, and the other the border, and call it *fimbriated*. Yet the expression *voidie du champ* occurs in the Roll of Karlaverock.

Piercing.

Crosses are sometimes *pierced*. That is, a portion of the ordinary is abstracted from the middle. There are three kinds of piercing: *round*, or *simple* piercing, when the part removed is circular; *lozengeways*, when it is in the form of a lozenge; and *quadrate* piercing, when it is square.

Plain.

A cross *plain*, or *couped*, is where the ends of the ordinary do not quite reach the circumference of the escutcheon. *Gules*, a plain cross, *argent*, was the coat-armour of the Order of Knights Templars. See fig. 29.

Aiguiscy.

This cross is sometimes sharpened at each end to a point, when it is termed *aiguiscy*, (*aigu*, Fr.) or urdy. *Argent*, a cross aiguiscy, voided, *sable*, is the Arms of Dukenfield, Bart. See fig. 30.

Clechy.

Sometimes the boundary line is curved, whence it is called *clechy*; some call this masely. See fig. 39, which we shall presently explain.

Calvary.

A cross *Calvary* is a plain cross, the bar somewhat elevated, and the whole raised on three *grieces*, *i. e.* steps. In such a manner are the crucifixes set at the entrance of towns in Countries professing the Romish Religion; from which circumstance this cross undoubtedly derives its name. It is sometimes found without steps, when it is termed a *long* or *passion cross*. It is exemplified in fig. 31, the Arms of the old Bishopric of Dunkeld, *argent*, a cross Calvary, *sable*, between two passion nails, *gules*.

Patriarchal

The *patriarchal cross* is *plain*, but has two bars, the upper smaller than the lower. It is the *insigne* of Patriarchs or Archbishops. It is not used by English Archbishops, but it generally forms part of the exterior decorations of the armorial bearings of Cardinals. The Arms of the Province of Lithuania are *gules*, a cavalier armed cap-a-pié, *argent*, mounted on a barded courser of the second, holding in his right hand a sword erect of the same, garnished *or*, and bearing on his left arm a shield *azure*, ensigned with a *patriarchal cross* of the second. Fig. 32.

Heraldry. Blazonry.

Lorrain. A cross *Lorrain* has the lower bar nearer the base, as in fig. 33, *argent*, a cross Lorrain, *gules*, the Arms of Hersfeld, quartered by the Prince of Hesse Cassel.

Crosslet. A *crosslet*, or *cross crosslet*, is a cross *crossed* towards each end. See fig. 34, the Arms of Taddington, *or*, a cross crosslet, *gules*. Such a cross between four plain crosses is called a Jerusalem cross. *Argent*, a Jerusalem cross, *or*, was the Arms of the Christian Kingdom of Jerusalem. This is what would be called false Heraldry, although this bearing was sanctioned by ancient prescription. Some make the centre cross *potent*.

Potent A cross *potent* is one which terminates in crutch heads. The derivation of this word has been already explained. An example will occur presently.

Crampony. A cross *crampony* is where the ends resemble cramp-irons. Azure, a cross crampony, *or*, are the Arms of Bulwark. See fig. 35.

Lambeau. A cross *lambeau* is exemplified in fig. 36, *gules*, a cross lambeau, *argent*, for Rudetzker.

Double-parted. A cross *double parted* is exemplified in fig. 37, *azure*, a cross double parted, *argent*, name, Doubler.

Potency. A cross *potency* is a figure more easily drawn than described. See fig. 38. *Gules*, a cross potency, *argent*.

Pommy. The cross *pommy* terminates in circles; from the resemblance of which to apples (*pommes*) it derives its name. Fig. 39, *azure*, a cross pommy, *argent*, is the ancient coat-armour of the Kings of Navarre, which Inigo Ximenes professed to have adopted at the suggestion of an Angel, who commanded him to make war on the Moors with a banner of this bearing. An ordinary, adorned with circles of this kind, is also called *pommetty*. Thus, fig 40, the bearing of the Count of Thoulouse, is *gules*, a cross clechy pometty, voided, *or*.

Botonny. A cross *botonny* is so called from the resemblance of its ends to buds, (quasi *boutonnée*, Fr.) It is exemplified in the Arms of Winwood, fig. 41, *argent*, a cross botonny, *sable*.

Moline. The cross *moline* terminates in representations of the ends of the *fer-de-moulin*, or milrind. *Argent*, a cross moline, *sable*, fig. 42, is the Arms of Dr. Alnwick, founder of the Philosophy School, Oxford.

Recercly. When the extremities curve very considerably, it is termed *recercly*, or *anchored*. See fig. 43, *gules*, three crosses recercly voided, *argent*, a chief *vairy*, *ermine* and *ermines*, the Arms of Verney.

Flory, or Patoncy. The cross *flory* differs from the moline in having three points at each end, instead of two. The term flory is sometimes applied to a very different cross, being *plain*, with a *fleur-de-lys* at each end. It may be better to call the present cross *patoncy* (*à patendo*) than *flory*, because, whatever name we may assign to this bearing, such a cross as that last mentioned would necessarily be called flory, as we shall, in our progress, have occasion to observe. But it should rather be blazoned, couped and flory at each end. Some make the extremities of the patoncy cross more erect, and distinguish between it and the flory cross. We give an example of this latter in fig. 44, the Arms of Bolton Priory, Yorkshire, *gules*, a cross patoncy, *vair*.

Paty, or Formy. The cross *paty*, like the former, has its name from the breadth of its arms. It is exemplified in fig. 45, the Arms of the See of Lichfield and Coventry. Per pale, *gules* and *argent*, a cross potent, quadrated in the centre,* counterchanged, between four *crosses paty*, the two in the dexter pale *or*, those in the sinister of the first. This cross is sometimes called *formy*.

Firmy. A cross of this kind reaching to the circumference of the shield is called a cross *firmy*. *Argent*, a cross paty firmy, *sable*, is the Arms of the city of Constance. See fig. 46.

Crosslet Paty. A cross terminating every way like a cross paty is called a crosslet paty. Argent, a crosslet paty, *sable*, is the bearing of Crossfall. See fig. 47.

There are also crosses paty concave and paty convex. *Argent*, a cross paty concave, *gules*, is the bearing of Wandley; and *gules*, a cross paty convex, *or*, is that of Honstein. See figs. 48 and 49. The paty and other crosses are sometimes *rebated*, *i. e.* lose their angular parts.

Maltese. The cross of Malta, little differing from the cross *paty*, except that the ends have double points, is rarely to be found in English arms. It is part of the insignia of the Knights of Malta, whence it derives its name. It is found in no English military Order, except that of the Bath, the jewel of which, in this form, is given in fig. 50.

Avellane The cross *avellane* is derived from *avellana*, the hazel-nut, which it somewhat resembles.

Paternoster The *paternoster* is a cross formed of beads.

Fitchy. A cross is said to be *fitchy* when the lower limb is sharply pointed, as if to stick (*fixer*) in the ground. (We shall give an example under the *bend*.) And it is

Fitched. said to be *fitched in the foot*, when a point is added at the bottom of the lower limb. Crosses borne as standards in the Crusades, and on other solemn occasions, were sometimes pointed at the end for the purpose of pitching when the army encamped. The traditional Arms of Edmund Ironside, King of England, fig. 51, are *or*, a cross paty, fitched in the foot, *azure*.

Degraded. A cross is said to be *degraded* when the ordinary is bounded by steps (*degrés*) towards the circumference of the escutcheon, as in fig. 52, the Arms of Wyntworth, *argent*, a crosslet degraded, *sable*.

Crusilly. When the field is covered with numerous little equidistant crosses, it is said to be *crusilly*.

Crosswise. When several charges are disposed in the form of a cross, or when two charges having length are placed vertically and horizontally, they are said to be placed *crosswise*.*

Bend. The *bend* is an ordinary bounded by parallel lines, equally distant from the line joining the dexter chief and sinister base. It contains the fifth part of the escutcheon uncharged, and the third charged. Its name may be derived from its *bended* position; but, more probably, from the French *bande*, since all its diminutives, except the *cost*, have names derived from the same idea. Fig. 52* is the Arms of the noble family of Howard, Duke of Norfolk, hereditary Earl Marshal of England, *gules*, a bend, *argent*, charged with an escutcheon of Scotland in the dexter chief, between six crosslets fitchy of the second.

Bendlet We scarcely know whether the *bendlet* should be con-

* When the centre is formed like a circle the cross is said to be *nowed*; when like a square, *quadrated*.

* The reader, in the course of his Heraldic studies, will discover that we have here set down only the principal crosses. To attempt the description of all would be impossible in this Essay, and we question whether this has ever been done. Juliana Berners, at least, authoress of the *Book of St. Albans*, gave up the idea in despair. "Now," says she, "I turne ageyne to the signe of the cros, and ask a question. How many crosses be borne in armys? to the wich question, under a certein nowmbur, I dare not answere, for crossis INNUMERABULL are borne now daily."

Heraldry.

sidered a diminutive of the bend. Gwillim is of the negative opinion, despite its name and general resemblance. The reason why Heralds have hesitated on this point is, that the bendlet, although occupying *nearly* the relative position of the bend, does never *exactly* occupy it; the upper side being in the exact corner of the escutcheon, and passing through the fess point. The bendlet, according to Gwillim, whose authority we follow on the litigated point of the content of the diminutives of the bend, should never occupy above one-sixth of the field. Fig. 53 is the Arms of Lord Byron, *argent*, three bendlets enhansed,* *gules*.

Garter. An ordinary containing one-half the bend is called a *garter*.

Cotise. The fourth of the bend is called a *cotise*, or *cost*, from *costa*, a rib. This ordinary is generally found in company with the bend, one on each side; whence the name. "When one of these is borne alone, then shall you term it in blazon a *cost*; but if they be borne by couples in any coat, (which is never, saith Leigh, but when a bend is placed between two of them,) then you may name them *cotises*."† Also a bend thus situated is said to be cotised. See fig. 54, the Arms of Fortescue, *azure*, a bend ingrailed, *argent*, cotised, *or*.

Riband. The *riband* contains the eighth of the bend; and it may be remarked concerning its name, that it unites the derivations of the bend and the cotise. Fig. 55 is blazoned *argent*, a bend traverse, *sable*. Name, Travers.

Bendy. When the whole field consists of alternate spaces of heterogeneous tincture, bounded by equidistant lines in the direction of the bend, it is called *bendy*. See fig. 56, bendy of ten, *sable* and *argent*, the bearing of the Duchy of Angoulême.

Party per bend. When the escutcheon is bisected by a line in the direction of the bend, it is called *per bend*, or *party per bend*. Anciently, this bearing was called *lentally*. Fig. 57, party per bend, embattled, *argent* and *gules*, is the bearing of the famous Philosopher Boyle, and of the Earls of Shannon, and Cork and Ossory, in Ireland.

Bendwise. When a charge having length lies in the direction of the bend, or when more charges than one are arranged in this direction, the charge or charges are said to be *bendwise*, or *bendways*, or *in bend*. An example will occur, fig. 66.

Combination of the pale and bend. Paly-bendy. When the field is divided into spaces filled alternately with heterogeneous tinctures, by lines in the direction of the pale and bend, it is said to be *paly bendy*. Paly bendy, *argent* and *azure*, are the Arms of Bavaria. See fig. 58.

Combinations of the fess and bend. Barry bendy. When lines drawn bendwise and barwise enclose alternate spaces of metal and colour, the bearing is termed *barry bendy*. *Gules*, a fess barry bendy, *argent* and *azure*, is borne by Husberg. See fig. 59.

Gyron. If a line drawn from the dexter chief to the fess point meet another drawn through that point fesswise to the dexter side of the escutcheon, the enclosed space forms the ordinary which is called the *gyron*. We derive its formation in this manner, because when a *gyron* is borne by itself, it is always made thus, unless otherwise specified. But every ordinary enclosed by the circumference of the escutcheon and by two lines meeting in the fess point, is called a gyron. *Argent*, a gyron, *gules*, is the bearing of Gyronell. Fig. 60.

Blazonry.

Gyronny. Hence is derived the term *gyronny*, which is applied where the whole field is divided by lines crossing each other in the fess point, and the spaces filled with alternate tinctures, not homogeneous. It is denominated from the number of spaces or *pieces*. Gyronny of six and gyronny of eight are those in greatest requisition; the word seems to be derived *à gyrando*, which appears more clearly from the gyronny than the gyron. Gyronny is by early armourists called *contrary coned*. Gyronny of six, *azure* and *or*, are the Arms of Ambery; of eight, *or* and *sable*, those of Campbell. See fig. 61, 62.

Bend sinister. The *bend sinister*, although only differing from the common bend in its position, which is from sinister chief to dexter base, is considered by armourists as a separate ordinary, on account of the difference in its subdivisions. *Gules*, a bend sinister, *argent*, is the bearing of Barber. Fig. 63.

Scarp. The *scarp* is a diminutive containing one-half of the bend (*écharpe*, a scarf, Fr. which it considerably resembles.)

Baston. The *baston*, or *batune*, as it is sometimes corruptly called, (*baston*, Norm. Fr., a truncheon,) contains one-fourth of the bend sinister, but never reaches quite to the circumference of the escutcheon. Of the use of this ordinary we shall speak in treating of marshalling. Meantime an example of it will be found in fig. 64, the Arms of the noble family of Fitzroy, Duke of Grafton. Quarterly first and fourth, quarterly again, first and fourth France, second and third England, second Scotland, third Ireland; over all a *baston* compony of six, *gules* and *argent*. The baston is the *insigne* of a marshal; two are placed behind the shield, *sable*, tipped *or*, and they lie in opposite directions; the sinister direction being no longer essential. This may be seen in fig. 52* the Arms of the Earl Marshal.

Party per bend sinister. When the escutcheon is bisected by a line in the direction of the bend sinister, the coat is blazoned *per bend sinister*, or party per bend sinister. See an example in fig. 65, the Arms of the Canton of Zurich, per bend sinister, *argent* and *azure*.

In bend sinister. The expression *in bend sinister* is applied when any charge having length is disposed in this manner; or when any number of charges are so arranged. Fig. 66, the Arms of the Episcopal See of Winchester, are *gules*, two keys endorsed in bend, the uppermost *argent*, the other *or*, and a sword in bend sinister, interposed between them, of the second, hilted of the third.

Combination of the bends. Saltire. The two bends in combination form an ordinary, which is called a *saltire*, *à saliendo*, because it seems to *leap* across the escutcheon. The Arms of the See of Bath and Wells (fig. 67) are *azure*, *à saltire* quarterly quartered,* *or* and *argent*. When a saltire is cut off by horizontal lines at chief and base, it is called *humetty*.

Saltire humetty.

Saltirewise. Charges having length placed in the direction of the saltire, are said to lie *in saltire*, *saltirewise*, or *saltireways*. Thus the Arms of the See of London (fig. 68) are blazoned *gules*, two swords *saltirewise*, *argent*, hilted *or*. The same expression applies to any number of charges arranged in this direction.

* An ordinary is said to be *enhansed* when it is placed above its proper position in the escutcheon. In the example the *lower* side of the lowest bendlet passes through the fess point instead of the higher. It is, however, called a bendlet, because the side passes *exactly* through this point. And the other ordinaries being the same in capacity, receive the same name. We may add that the diminutives of the bend are much controverted.

† Gwill. ch. iv. sec. 2.

* This expression applies to saltires and crosses when they are bisected by straight lines crossing each other, and the alternate spaces are filled with different tinctures.

Heraldry. A crosslet in saltire is called a St. Julian's cross. *Argent*, a St. Julian's cross, *sable*, are the Arms of Julian. When the coat is divided by two lines in the direction of the saltire, and the alternate spaces are filled with tinctures not homogeneous, it is blazoned Party per saltire. *per saltire*, or *party per saltire*. The same is sometimes called *gyronny of four*.

Lozengy. When the field or charge is divided by many lines drawn saltirewise into spaces filled with alternate tinctures not homogeneous, it is called lozengy, (lozengy, *argent* and *gules*, fig. 69, is the Arms of the Prince of Monaco,) and each of the compartments is termed a lozenge, (*lauringia*, from its shape,) Lozenge. which is often borne as a separate ordinary, and is always the form of the escutcheon which contains the bearings of unmarried females. The lozenge is not limited to any particular capacity. Edmondson makes the width of the lozenge three-quarters of its height; but on this authors differ. When a lozenge reaches every way to the circumference of the escutcheon, it is called *a grand lozenge*, or a lozenge throughout. See fig. 70, the Arms of the Count of Graffen Egg; *gules*, a grand lozenge *argent*.

Mascle. A lozenge voided is called a *mascle*, (*macula*, the mesh of a net, which this ordinary exactly resembles.) But Edmondson says, "according to the sentiments of *all* authors, it should be an exact square." Who these authors are it is not so easy to specify. See fig. 71, the Arms of the city of Rouen, *gules*, nine mascles, three, three, and three, *or*. Lozengy voided is called *mascally*.

Fret. A *fret* is a mascle interlaced with a saltire. The term seems to be derived from *fretus*, the ordinary representing sticks *supported* by each other. See fig. 72, *argent*, a fret, *sable*, the Arms of Vernon. Sometimes we find a fret of *eight pieces*.

Fretty. When the field or charge is covered with bendlets dexter and sinister interlaced at equal distances, after the manner of the fret, *but exceeding eight pieces*, the bearing is called *fretty*. Fig. 73, *argent*, fretty, *azure*, is the bearing of De Montier Aullier. It is astonishing that etymologists should here have thought of the *fretting* of water over the stones of a brook. The derivation is obviously from the *fret*, and its etymology ultimately the same. When charges appear between the frets, the bearing is called *diaper*.

Fretted. Charges alternately crossing each other are said to be fretted. Azure, three trouts *fretted in triangle*, teste-à-la-queue, *argent*, are the Arms of Troutbeck, quartered by the Talbots of Grafton. See them, fig. 74.

Fusil. The lozenge somewhat elongated takes the name of a *fusil*, from *fusce*, the old Norman word for a spindle, which its form resembles. *Azure*, five fusils in fess, *or*, are the Arms of the Abbey of Salley. Fig. 75.

Fusilly. When a shield or charge is divided into fusils of two tinctures alternately, it is called *fusilly*, and further denominated from the *direction* of the fusils. If they lie palewise, it is called *fusilly* only; if barwise, *fusilly barry*; if bendwise, *fusilly bendy*. Fusilly and *ermine* on a chief of the first, three lilies *argent*, is the Arms of Magdalen College, Oxford. Fig. 76.

Rustre. The lozenge pierced is called a *rustre*. See fig. 77, *azure*, three rustres, *argent*, the Arms of Lebaret.

Chevron. The *chevron* may be considered as the progeny of the saltire, as consisting of the lower half of that ordinary brought to a point on the upper side. Some assign to this ordinary one-fifth, and some one-third, of the escutcheon. The latter may always be assumed when the ordinary is charged. Chevron, in French, signifies the support of a slanting roof formed by one rafter lying against the other, which is precisely the shape of the ordinary. The chevron is always shaded on the two lower sides, not on one lower and one upper. Many examples of this ordinary will occur as we proceed. Blazonry.

Concerning the locality of this ordinary, great is the contest among armorists. The grave and decorous Gwillim* is excited to almost unbecoming warmth by those "common disorderers of these tokens of honour," "the common painters," who have ventured to depress the vertex of the chevron from the middle chief to the honour point. But notwithstanding this venerable authority, the practice of Heralds has been to follow this corrupt example. Yet is the chevron found in various situations. Sometimes a fess occurs between two of them. Sometimes it stands on one side of the escutcheon, in which case it is called *tourny*, and denominated from the side. *Or*, a chevron tourny, sinister, *gules*, is the bearing of Tournay, see fig. 78: the same bearing is sometimes called a chevron *couched*, *counter-turned*, or *counter-pointed*. Sometimes we find them *interlaced*, or *braced*, as in the Arms of Fitzhugh, fig. 79, *azure*, three chevrons interlaced, a chief, *or*. The chevron is beside Chevron removed. subject to couping and voiding, and to an operation called *removing*, which will be better understood by a representation than a definition. See fig. 80, a chevron removed, a chief, *argent*, the Arms of Wolfsthall. Another form of this ordinary is called *debrused*, or *fracted*. See fig. 81, *azure*, a chevron debrused, *argent*, name, Winterfall. Fig. 82 presents a form which is also called a chevron removed. Perhaps it would be more correct to call it *removed one joint*. When the middle part of the chevron is wholly taken away, it is said to be *disjointed*. See fig. 83, *gules*, a chevron disjointed, *or*, name, Discord.

An ordinary containing one-half the chevron, but Chevronel. having the same shape, is called a *chevronel*. The Arms of Clare (fig. 84) are *or*, three chevronels, *gules*.

An ordinary containing one-quarter of the chevron Couple close. is called a *couple close*, which always is found in company with the chevron, one on each side, which in that case is said to be *cotised*. Edmondson, however, calls all diminutives of the chevron chevronels, and only applies the term couple-close when the ordinaries are placed in pairs; but in this he is not generally followed.

When the escutcheon is parted by two lines in the Party per chevron. direction of the chevron, meeting in or a little above the fess point, the coat is said to be *per chevron*, or *party per chevron*. Party per chevron, *sable* and *argent*, are the Arms of Aston. See fig. 85.

When the field or charge is divided into parallel Chevronny spaces in the form of chevrons, occupied with alternate metal, &c. not homogeneous, such bearing is called *chevronny*, and is further denominated from the number of its pieces, as paly, barry, &c. Chevronny of eight, *argent* and *vert*, is the bearing of Chevronney. Fig. 86.

When charges assume the form of the chevron, they Chevron wise. are said to be placed *in chevron*, *chevronwise*, or *chevronways*. Argent, a heart, *gules*, pierced by two swords chevronwise, *azure*, is the bearing of Pearson. Fig. 87.

When the bends and pale terminate where they meet, they form the ordinary called the *pall*, from its resem-

* Ch. vi. sec. 2.

Heraldry. Blazonry.

blance to the *pallium* of patriarchs and archbishops. Some call it the *pairle*, from the French, after the Latin *pergula*. And it may be well to distinguish it from the *actual* pall, which, as we shall have occasion to observe, sometimes occurs in coat-armour. Fig. 88, *or*, a pairle, *gules*, is the Arms of Pauling.

Combination of the bends and the pale. Pall, or pairle.

Pile.

We may here conveniently notice the ordinary called the *pile*, which is commonly enclosed by two lines drawn from the upper side of the escutcheon meeting in a point; and this we ought to do in this place according to the opinion of those who consider it the natural offspring of the saltire, as being the space enclosed in chief by the boundary lines of that ordinary. To this opinion, however, we do not subscribe; as the pile always reaches below the fess point, while the point of intersection of the upper lines of the saltire falls always above it. Beside which circumstance the position itself of the pile varies in a manner to destroy all analogy between it and the saltire, or rather the space in chief of the saltire. We prefer, therefore, to consider it an independent ordinary. It seems singular that its etymology should ever have been questioned. It is so exactly a representation of a *pile* on which bridges, &c. are built, that nothing can be more so. Fig. 89, the Arms of Chandos, are *argent*, a pile, *gules*.

"When there is but one pile in the field it must contain the third part (of the escutcheon) at the chief."* Such is Gwillim's rule. But practice does not universally confirm it. When several piles are borne in one coat, they must converge towards the base, unless otherwise specified. See fig. 90, *argent*, three piles, *gules*, for Gildsbrough. Fig. 91 is blazoned, *argent*, a triple pile in base per bend sinister, *vert*, flory, *sable*.

Pily.

When the shield is parted by zig-zag lines into more than three spaces, the bearing is said to be *pily*. This is a very uncommon bearing. It is called *barry pily*, or *bendy pily*, when in direction of the bar or bend; but when in direction of the pale, *pily* only. But when there are only three spaces or pieces, it is called *party per pile;* and the words *traverse*, *inverse*, *per bend*, &c. are added, according to the position of the lines. Per pile traverse, *argent* and *gules*, are the Arms of Rathlow. Fig. 92. Per pile inverse, *or*, *gules*, and *sable*, those of Meinstorff. Fig. 93.

Party per pile.

Pilewise.

When several small charges are arranged in the form of an inverted pyramid, or when charges having length meet in the base and widen at the chief, they are said to be borne *in pile*, *pileways*, or *pilewise*. When three charges alone are borne, and no specification is made, they are always understood to be borne pilewise.

Bordure.

We have now discharged the consideration of the great ordinaries, and those which are either their diminutives or derivatives. The next object which appears to claim our attention is the *bordure* or *border*, whose name sufficiently conveys its description. It occupies one-fifth of the escutcheon. Edmondson and some other writers of authority do not allow the bordure to be shaded, which would deprive it of the nature of an ordinary altogether, which is a charge, and reduce it to a mere division of the shield. But as it is generally regarded as an ordinary, it ought, on that account, to be shaded. The bordure, if of fur, formerly was blazoned "*perflew* of ermine, ermines, &c." or whatever the fur might happen to be; if charged with beasts, it was blazoned "*enurny* (*en orné*, Fr.) of lions, &c;" if with birds, "*enaluron*, (*en orle*, Fr. *in a border*,) of eagles, &c.;" if of plants, *verdoy*, of roses, &c.; and if of other inanimate objects, "*entoyry* (*entouré*, surrounded) of crosslets," &c. But these useless distinctions have now given way to the usual mode of blazonry. When the bordure is simply *adumbrated*, the arms must be blazoned as in fig. 94, the Arms of Magdeburg; per fess, *vert* and *argent*, each *imbordured*.

Tressure.

A border running parallel with the sides of the escutcheon, containing about one-quarter of the bordure, is called a *tressure*. It is generally double, and sometimes triple, and it is most usually *flory-counterflory*, *i. e.* ornamented with *fleurs-de-lys** alternately arranged in opposite directions. This bearing makes a part of the Arms of Scotland, and, as it is pretended, was a present of honour from Charlemagne to Achaius, then King of that Country. Several Scottish coats have the tressure, particularly that of the Royal House of Stuart, which occurs in fig. 95: *or*, a fess checky, *argent* and *azure*, within a double *tressure*, flory-counterflory, *gules*.

We do not here mention the *orle*, which some consider a diminutive of the bordure, because we rather regard it as referable to the inescutcheon, which we shall presently notice.

Flanches.

A subordinate, but strictly independent, ordinary is the *flanch*, which is contained by the circumference of a semicirele and the side of the escutcheon. Two of these are always borne together. They have diminutives contained by ellipses of different eccentricity and respectively called *flasques* and *voiders;* but concerning these armorists are not agreed, some making the *flasque* the principal ordinary, and the flanch the derivative. The distinction, however, is now obsolete, and all figures of this kind are known by the common term of *flanch*. *Or*, two flanches, *gules*, were the Arms of Lancroft Priory, Cumberland. Fig. 96.

Flasques and voiders.

Inescutcheon.

An escutcheon placed upon the fess point is called an *inescutcheon*.† "This ordinary containeth the fifth part of the field," saith Leigh, "but his demonstration denoteth the third part." So observes Gwillim; and perhaps the best way of reconciling this contradiction will be to allow this ordinary, like some others, the third part when charged, and the fifth part otherwise. It is evident that this ordinary must not encroach too much on the escutcheon, as then the remainder would become a bordure. Some Heralds call all escutcheons borne as arms inescutcheons; but the ancient practice was certainly to restrict this term to an escutcheon borne on the fess point.

Orle.

An inescutcheon voided is called an *orle*, (*orula*, Latin, little border,) which contains the half of a bordure. An orle is sometimes borne double, or triple, that is, one or more orles within another. *Gules*, an orle, *argent*, is the Arms of the family of Baliol; hence of Baliol College, Oxford. Fig. 97.

Charges disposed in the form of an orle, are said to be *in orle*.

These are the bearings usually comprehended under the name of ordinaries. To these may be added the file, lambeau, or *label*, (by which last name it is most

* Gwil. ch. vi. sec. 2.

* The *fleur-de-lys* is a bearing so well known, as scarcely to need description. Yet we should not have deviated from our orderly arrangement by introducing it in this place, except from necessity. The tressure has every right to be considered a variety of the bordure; and the *fleur-de-lys* is its usual companion.

† Of whatever form the escutcheon is, the inescutcheon *generally* follows it.

Heraldry. commonly blazoned,) a figure consisting of one piece reaching across the shield, and several at right lines to it, which are called points. This figure is by some writers excluded from the honours of an ordinary, and considered only as a family distinction. But Gwillim has produced several coats in which it is undoubtedly a bearing; as for example, fig. 98, that of Liskirk, *or*, three labels, barwise, *gules*, the first of five points, the second of four, and the third of three. The abatements we reserve to the division on marshalling. We shall now advance to the discussion of those bearings which are called common charges, first briefly noticing those known by the name of *Roundels* and *Guttes*.

Roundels, with their distinctive appellations.

A *roundel* is a circle, supposed to be emblematic of a blow sustained in the shield. Foreign Heralds call all roundels indiscriminately *tourteaux*, but this name in English Heraldry is restricted to the red roundel. The roundels are denominated as follows:

Gold. *Bezant*, from Byzantinus, (*sc. nummus*,) the gold coin of Byzantium.

White. *Plate*, from the Spanish *plata*, silver.

Red. *Tourteau*, Fr. a kind of cake.*

Blue. *Hurt*, a flower of a blue colour.

Green. *Pomme*, Fr. an apple.

Black. *Pellet*, *Ogress*, or *Gunstone*. The first of these terms is most in use.

Purple. *Golpe*, which some (*si Diis placet*) derive from the verb to *gulp*.

The orange-coloured roundel naturally takes the name of that fruit; and the "sanguine" is termed *guze*, from *gueuse*, Fr. a mass of heated metal; it represents a heated cannon ball. The last two are very rarely used.

The above names are always employed by English Heralds, who never blazon "a roundel *or*," &c. but always, "a bezant," &c.; except only in counterchanges, where this mode of blazon would be awkward and prolix. Thus the Arms of Abtot, Earl of Worcester in William Rufus's time, fig. 99, are, according to Gwillim, "per pale, *or* and *gules*, three roundels counterchanged." And where the roundel is of fur, or of equal tinctures; as, a roundel ermine, a roundel checky, &c. Some represent the bezant and plate flat, and the other roundels spherical. But as the lower roundel in this coat must partake of gold and red, in order that the three may be arranged pilewise, (see under *pilewise*,) it is obvious that this rule must be violated here.

A roundel barry wavy of six, *argent* and *azure*, is called *a fountain*, of which natural object it is a rude representation. This roundel is always represented flat. When the field or charge is strewed with equidistant roundels, it is said to be *bezanty*, *platy*, *pommetty*, *hurty*, *pelletty*, *semy of torteaux*, *semy of golpes*, *semy of oranges*, *semy of guzes*, according to the nature of the roundel.

Guttes.

Guttes are devices resembling drops, from *goutte*, Fr. a drop. They are most generally borne at equal distances, scattered over the whole shield or charge, which thence is said to be gutty, with the following distinctions.

Blazonry.

If the drops be of gold, the object is denominated	*gutty d'or.*
white	*d'eau.*
red	*de sang.*
blue	*de larmes.*
black	*de poix.*
green	*d'huile d'olive.*

An illustrative example will be found in fig. 100, the Arms of the Penitents of St. Francis, *sable*, gutty d'eau, in chief a dove with wings expansed descending, *argent*.

Common charges.

Next to the ordinaries come to be considered the common charges, under which name is comprehended every other species of charge. We shall class them into animate and inanimate.

Animate.

1. Animate charges are 1. celestial; 2. terrestrial; 3. chimerical. All animate charges are represented moving towards the dexter side of the escutcheon, unless otherwise specified; if they respect the sinister side, they are said to be *contourny*.

Celestial.

1. Celestial animate charges are angels and cherubim. The vulgar representation of an angel, an human figure with wings, is too well known to make any particularizing necessary.

A cherub is an infant face between two or more wings. Fig. 101, *sable*, a chevron between three cherubim, *or*, is the bearing of Challoner.

Terrestrial.

2. There are some terms which indifferently apply to all kinds of terrestrial creatures; such as *couped*, where the charge is abruptly terminated in a straight line; an expression which we have already seen applied to ordinaries; *erased*, where the charge terminates in three parts; *demy*, where the *couped* upper half of the creature is represented; *gardant*, when the full face is exhibited; *regardant*, when turned back over the shoulders.

Man.

The human figure, as might be expected, enters largely into Heraldry; not, however, so *technically*, as to render it necessary to give many examples. Man is said to be *crined* of the colour of his hair.

The most remarkable human figure which is the strict property of Heraldry, is what is called a *Prester John*, *viz.* a Patriarch seated, bearing in his mouth a drawn sword fesswise, his dexter hand erect, the fourth and fifth finger bent; his sinister holding a book expansed.* *Azure*, a Prester John, *proper*, are the Arms of the See of Chichester. Fig. 102. The Prester John appears to be the Evangelist John, who calls himself, κυτ' ἐξαχὴν, ὁ πρεσβύτερος; and the sword is the representation of "the sword of the Spirit, which is the word of God."

A human arm bent back is said to be *embowed* when the elbow is to the dexter side; when to the sinister, *counter embowed*; a hand extended, with the palm presented, *apaumy*. If armed, the arm is called *vambraced*. (*avant-bras*.)

Fig. 103 presents a bearing somewhat fantastical, which is blazoned thus: *gules*, three legs armed, proper, conjoined in fess at the upper part of the thigh, flexed in triangle, garnished and spurred, *or*. This is the bearing of the Isle of Man.

Beasts.

Beasts are said to be *passant* when represented as *passing* or walking by; *rampant*, when rearing; *saliant*, when springing forward; *sejant*, when sitting; *statant*, when standing; *current*, when running; *couchant*,† when

* It is said that a Spanish Prince, being about to engage the Moors, encouraged his men to eat a quantity of cakes, by telling them, that as many cakes as each man ate, so many Moors he would kill in the battle. After the victory, the various Chiefs, in memory of the occurrence, assumed in their bearings as many cakes as they had respectively eaten. This tradition is applied to explain the frequency of tourteaux in the arms of the Andalusian nobility.

* No Heraldic figure is more variously represented than the Prester John. Our representation is taken from an authoritative drawing in the College of Arms.

† Beasts of prey are said to be *couchant*; beasts of chase, *lodged*. The same distinction obtains respectively between the terms *saliant* and *springing*, *passant* and *tripping*. Lions feeding are *rupin*.

Heraldry. lying; *dormant*, when sleeping; *nascent*, when rising out of the *midst* of any ordinary, &c.; *issuant*, when from the top or bottom. The lion on the crown of Scotland, in a sejant gardant position, is said to be *assis.* (seated.) They are called *dismembered*, when their heads, tails, and feet are separated from their bodies. When rampant in opposite directions, front to front, they are termed *combatant;* when back to back, *addorsy.* When two animals are represented side to side, as in fig. 104, but moving in opposite directions, they are said to be *countertripping*, *counterpassant*, *countersaliant*, &c. as the case may happen. The example is blazoned, *sable*, two hinds, countertripping, *argent.* Beasts are also called *debruised*, when a charge is placed over them. They are said to be *armed* and *langued* of the colour of their claws and tongue;* *queued*, of their tails; *unguled*, of their hoofs; *armed*, of their horns, except deer, which are *attired.* When the head only is presented without any part of the neck, it is said to be *cabossed.* (*cabeça*, Span. *head.*) Fig. 105, the Arms of Mackenzie, are *azure*, a stag's head cabossed, *or.*

A deer statant gardant is said to be *at gaze.*

Lions are said to be *coward*, when the tail is brought down between the legs; *defamed*, when the tail is altogether taken away; *baillony*, when they bear a baston in the mouth. If more than one appear in a coat, they are called *lioncels;* but this distinction is now little observed. The whole foreleg of the lion is called a *gamb.* (*jambe*, leg, Fr.) If the lower joint only be represented, it is called a *paw.*

An extraordinary bearing is noticed by Gwillim, (chap. xv. sec. 3) which we have copied, fig. 106. It is thus blazoned by him; "the field is Mars, (*gules,*) a *tricorporated* lion, issuing out of the three corners of the escutcheon, all meeting under one head in the fess point, sol, (*or,*) armed and langued, Jupiter (*az.*)" For whose Arms this blazon is intended, we are not informed. Edmund, Earl of Lancaster, brother of Edward I., and one of the ancestors of the Earl of Totness in Gwillim's time, is mentioned by him as bearing Arms not very dissimilar from these.

A *holy lamb* is a lamb passant, *proper*, his head surrounded with a glory, *or*, and supporting in his sinister ungule a staff, *argent*, ending in a cross, ensigned with a flag of the third, charged with a cross, *gules.* The Arms of the Middle Temple, London, are *argent*, on a cross of England, a holy lamb. Fig. 107.

Birds. *Birds* are said to be *membered* of the colour of their bills and talons, except they be of prey, when they are said to be *armed.* And their bills and talons are called *members.* Their wings are *displayed*, when open; *erect*, when extending upwards; *inverted*, when downwards; *close*, when closed. When the wings are displayed, and the bird's body lies in fess or bend, it is said to be *volant* in fess or bend. So *argent*, a heron volant in fess, *azure*, between three escallops *sable*, is the bearing of Herondon. Fig. 108. The swan and other heavy birds, opening their wings to fly, are termed *rousant.* When they look behind them, they, as well as beasts, are called *regardant.*

Birds are sometimes *displayed*, which is a kind of bearing better explained by an example than by any definition. Our example shall be the Arms of the town of Bedford, fig. 109, *argent*, an eagle displayed, wings inverted, *azure*, ensigned with a triple tower of the first. Blazonry

Sometimes Heraldry superadds to Nature, as in the escutcheon of Russia, fig. 110. *Or*, an eagle with two heads displayed, *sable*, each ducally crowned of the field, the whole imperially crowned, beaked and membered, *gules.* In the dexter foot a sceptre erect, in the sinister a mound proper, on the breast an escutcheon, *gules*, charged with a cavalier slaying a dragon, *argent.* A peacock with his tail displayed is said to be *in his pride*, and a pelican feeding her young is *in her piety.* The cock is said to be *crested* of the colour of his comb, and *jollopped* of that of his wattles. The *Cornish chough* is represented as a raven membered and beaked, *gules.*

If the word *bird* alone be used in blazon, the form must be that of a blackbird; but the colour as blazoned. If more *eagles* than one appear in the shield, they are properly called *eaglets.* But this minutia is often overlooked. Two wings conjoined, inverted, are said to be in *lure.* See the Arms of Seymour, fig. 111, *azure*, two wings conjoined in lure, *or.*

When three ostrich feathers are borne together, they are called a *plume;* if they exceed three, they must be blazoned *a plume of feathers.* Rows of feathers are called *heights;* or they may be blazoned *a double*, *triple*, *&c. plume.*

A swan's head should always be blazoned *a swan's neck;* a mode of expression never applied to any other bird.

The cassowary is Heraldically termed an *emew.* Fishes.

Fishes, when in pale, are said to be *hauriant;* when in fess, *naiant.* When a whale or dolphin is borne, it is necessary to particularize whether it is *embowed* or *extended.* *Azure*, a dolphin *embowed*, hauriant, *or*, is a coat always borne quarterly with the Arms of France, by the Dauphin. It will be found in fig. 112. *Gules*, three bars, wavy, *or;* in chief, three escallops of the second, over all a dolphin, *azure*, are the Arms of the town of Poole. Fig. 113.

Other fishes are sometimes *embowed*, when two occur in the escutcheon. If they turn towards each other, they are said to be *respecting;* if in an opposite direction, *endorsed.* The Arms of Colston are, *argent*, an anchor in pale, inverted, the flukes in the mouths of two dolphins respecting, *sable.* Fig. 114. *Gules*, two pikes hauriant, endorsed, *or*, are the Arms of the dominion of Phiert. They are ensigned with the crown of Wurtemberg. Fig. 115.

Serpents, and animals of the genus *anguis* generally, are said to be *nowed*, when they are repeatedly twisted in knots. Angues.

3. Chimerical figures, or monsters, are usually preposterous combinations of real animals. Chimerical figures.

Those compounded with the human form are, the Sagittary, the Man-tiger, the Sphinx, the Harpy, the Triton, and the Mermaid.

The *Sagittary* is well known as the representation of the zodiacal sign of that name. It represents a Centaur, or creature of which the upper half is human, and the lower the body of a horse, holding an arrow on a bended bow. The instance which we shall select is rather curious, being the Arms of Stephen, King of England, adopted by him in consequence of his landing in England when the sun was in the sign Sagittarius. He changed the heads of the leopards into human bodies, the leopard supplying the place of the horse, thus making the Arms of England, *gules*, three leopard-sagittaries in pale, passant regardant, *or.* Fig. 116.

* Lions are always armed and langued *gules*, except the field or charge be *gules;* in which case azure is substituted. And all beasts azure are armed *gules*, and *vice versâ.*

Heraldry. The *Man-tiger* is a chimerical animal, having the face of a man, the mane of a lion, the body of a tiger, and two straight horns. *Or*, a man-tiger, *gules*, armed of the field, is the bearing of Helter. See fig. 117.

The *Sphinx* is an emblematical object of Egyptian superstition, having the head and breasts of a woman, the body of a lion, and two broad plumed wings. If these are omitted, it is called a *sphinx sans wings*. It has been added to the Arms of officers who signalized themselves in the war with the French in Egypt. The crest of Asgill, fig. 118, is a Sphinx sans wings.

The *Harpy* is an animal having the upper part of a woman, and the lower parts and wings of a bird; *Virgineæ volucrum facies*, as the whole idea is happily conveyed by Virgil. Fig. 119 expresses the armorial bearings of the city of Nuremberg, *azure*, a *Harpy* displayed, crined, crowned, and armed, *or*.

The *Triton* is an animal uniting the upper part of a man with the lower of a fish. See fig. 120, the bearing of Sir Isaac Heard, impaled with that of his office, Garter King of Arms, and ensigned with the crown of a King of Arms. The whole is blazoned thus: *argent*, a cross, *gules*; on a chief *azure*, a ducal coronet, *or*, surrounded by the garter, between a lion of England and a fleur-de-lys of France; the whole impaled with a Triton, crowned, grasping in his right hand a trident, and in his left the mast of a ship; all in the sea, *proper*. On a chief *azure*, an estoile *argent*.

The *Mermaid* is the female of the last monster.

Desinit in piscem mulier formosa superne.

She is generally represented bearing a mirror and a comb.

Monstrous beasts are the unicorn, the Pegasus, the antelope, the tiger, the musimon, the dragon, the gryphon, the salamander, and the opinicus.

The *Unicorn* is a horse, tailed like a lion, and having one straight horn issuant from his forehead. He is the present sinister supporter of the Arms of the United Kingdom of Great Britain and Ireland. See him in fig. 121, *argent*, an unicorn, *sable*, name, Harling.

The *Pegasus* is none other than the winged horse known by this name to antiquity. We have given a representation of him in fig. 122, *azure*, a *Pegasus* volant, *argent*, being the Arms of the Honourable Society of the Inner Temple, London.

The *Antelope*, though bearing the name of a creature well known in zoology, is chimerical in Heraldry. The Heraldic antelope has the body of a wolf, the tail of a lion, and a tusk on its nose, like that of the rhinoceros. The Heraldic *tiger* only differs from this beast by having on its head two serrated horns, and being hoofed like a deer. If its horns project straightforward, it is called an ibex. *Argent*, an antelope, *gules*, attired and unguled, *or*, is the Arms of Antilupe. Fig. 123.

The *Musimon* is an animal supposed to be generated between the goat and the sheep. See fig. 124, the Arms of Arnold, *gules*, a musimon, *argent*.

The *Dragon* is a quadruped having the tail of a serpent, with a pair of ribbed wings. Herein he differs from the δρακῶν of antiquity, whence he derives his name. The δρακῶν was merely a large serpent. Dragons are the supporters of the Arms of the City of London. A dragon with seven heads is called a *hydra*. *Or*, a dragon passant, *gules*, is the Arms of the Empire of China. See fig. 125.

The *Gryphon* is an animal having the head, the wings, and the talons of the eagle in front, and the hinder parts of a lion. The γρὺψ of the Ancients, whence this creature has his name, was a bird. The gryphon, when rampant, with wings erect, is said to be *segreant*, or *sergreant*, probably from *surgo*; and *sable*, a *gryphon* sergreant, *or*, is the Arms of the Honourable Society of Gray's Inn, London. Fig. 126. Blazonry.

The *Salamander* is an animal somewhat resembling a lizard, and always represented in flames. See fig. 127, *azure*, a salamander, *proper*, the Arms of Cennino.

The *Opinicus* has the head and wings of an eagle, the body of a lion, and the tail of a camel. It is the crest of the Company of Barber-surgeons of London. See fig. 128.

Any animal may be Heraldically converted into a marine monster, by changing the lower part of the body into the tail of a fish. Thus are formed the sea-horse, sea-lion, &c. Heraldically called *horse poisson*, *lion poisson*, &c.

Monstrous birds are the allerion, the martlet, the cannet, the phœnix, the wyvern, and the cockatrice.

The *Allerion* is an eagle *sans* beak and feet.

The *Martlet* is a corruption of the French *martinette*, the small martin; it resembles a martin without legs. The French have again corrupted our word into *merlette*, which would seem to signify a little blackbird. The martlet is a very ancient bearing, and is interesting to the Englishman from the share which it sustains in the Arms of our Saxon Kings: those of Edward the Confessor (fig. 129) are blazoned *azure*, a cross flory, between five martlets, in orle, *or*.

The *Cannet* is a duck *sans* beak and feet.

The *Phœnix* is a well-known creation of ancient imagination. It is represented like an eagle, with gaudy plumage, unless the colour be expressed, and sitting on a blazing nest. A phœnix on a ducal coronet is the crest of Seymour. Fig. 130.

The *Wyvern* is a two-legged dragon; as a winged biped, he may deserve to be classed among the chimerical birds. Fig. 131 is the ancient bearing of the Vandals, quartered in the ancient Arms of Denmark and Norway: *gules*, a wyvern with wings displayed and tail nowed, *or*. The escutcheon is ensigned with the crown of Denmark.

The *Cockatrice* has the head and feet of a cock, with the wings and tail of a dragon. When the tail is terminated by the head of a dragon, he is called a *basilisk*. *Argent*, a cockatrice, *sable*, crested and jelloped, *gules*, is the bearing of Langley. Fig. 132.

Charges decorated with the heads of serpents are termed *gringolly*; of lions, *leonced*; of eagles, *aquilated*; of peacocks, *pavonated*, &c. See the Arms of Kaer, fig. 133, *gules*, a plain cross, ermine, gringolly, *proper*.

Of inanimate charges, we consider vegetable productions as first deserving notice, from the intermediate situation which they occupy between the rest of the inanimate world and animals. Inanimate. Vegetables.

Trees and flowers are subject to *couping* as well as animals. They are besides *blasted*, when leafless; *eradicated*, when the roots appear; *slipped*, when irregularly broken off; *pendent*, if drooping; *fructed*, if bearing fruit; *accrued*, if full grown. A wheatsheaf is called a *garb*.

Heraldic flowers, *i. e.* such flowers as have a purely Heraldic representation, are the rose, the fleur-de-lys, the trefoil, the quaterfoil, the cinkfoil, the narcissus, and the double quaterfoil.

Heraldry.

Of the Heraldic *rose*, we have given a representation in fig. 134, the Arms of Christ Church, Oxford. *Sable*, on a cross engrailed, *argent*, a lion passant, *gules*, between four leopards' heads, *azure*; on a chief, *or*, a rose, *gules*, barded *vert*, between two Cornish choughs, *proper*.*

Of the *fleur-de-lys*, we have given some account before. Our example for this will of course be the Arms of France, *azure*, three fleur-de-lys, *or*, as represented in fig. 135. Any charge *ornamented* with fleur-de-lys (not used as charges) is called *flory*.

The remaining flowers represent different species of grass, having respectively three, four, five, six, and eight leaves. Examples occur in the following escutcheons.

Fig. 136. The trefoil. *Gules*, on a bend *argent*, three trefoils within a bordure, *vert*, the bearing of Doctors' Commons, being the arms of Dr. Harvey, the founder.

Fig. 137. The quaterfoil. *Gules*, five quaterfoils in saltire, *or*. Name, Palmer.

Fig. 138. The cinkfoil. *Or*, a chevron between three cinkfoils, *gules*, for All Souls' College, Oxford.

Fig. 139. The narcissus. *Argent*, a narcissus, *gules*. Name, Sextill.

Combination of animals and plants.

There is a curious combination of animal and plant exhibited in the Arms of the See of Hereford, fig. 140, *gules*, three leopards' heads reversed, jessant as many fleur-de-lys, *or*.

Celestial bodies.

Of all objects not possessing life the heavenly bodies will first claim our notice.

The sun is represented as a circle rayonny, containing a human face. He is usually *or*; and when this is the case, he is said to be *in his splendour*; when he is *sable*, he is *in his detriment*. We shall give a representation of a Heraldic sun in a singular coat shortly to be noticed.

The full moon, or moon *in her complement*, is a circle containing a female face, and surrounded with rectilinear rays. When *argent*, it is only necessary to say proper, or leave the colour unmentioned. When *sable*, the moon is said to be *in her detriment*. We shall exhibit her in the coat just mentioned.

An *increscent* is a horned moon, the horns being to the dexter of the escutcheon. Fig. 141, *azure*, an increscent, *argent*, is the Arms of the Turkish Empire.

A *crescent* is the same, the horns being towards the chief. See fig. 142, the Arms of Tutbury Monastery, *azure*, a saltire vair of gold and red, between four crescents, *argent*.

A *decrescent* is the same, having the horns to the sinister. See fig. 143, *azure*, a decrescent, *proper*. Name, Delaluna.

An *estoile*, or Heraldic star, has its points all wavy; if they vary from six, the number must be specified. This charge, together with the Heraldic sun and moon, is curiously exemplified in the bearing of John de Fontibus, sixth Bishop of Ely. His Arms appear in fig. 144. They are blazoned *azure*, in chief, the sun in his splendour, the moon in her complement; in base, the 7 stars, 1, 2, 1, 2, 1, *or*.

A mullet is supposed to represent a meteor, and has sometimes six, but most generally five points, all plain; when a mullet alone is mentioned it has always five points. Fig. 145, *gules*, on a chief, *argent*, two mullets, *sable*, is the Arms of the great Lord Chancellor Bacon, Baron Verulam and Viscount St. Alban's. A very similar bearing, *viz. argent*, on a chief, *gules*, two mullets pierced, *or*, is the Arms of St. John, Lord Bolingbroke. Blazonry.

A *thunderbolt* is a fantastical imitation of the ancient representation of this object. *Sable*, a thunderbolt, *or*, the pretended Arms of Scythia. Fig. 146.

Precious stones.

Of *precious stones* the only one which is strictly Heraldic is the *escarbuncle* or carbuncle, which is borne generally of eight rays, as in fig. 147, *gules*, a chief, *argent*, over all an escarbuncle of eight rays, *or*. This is the bearing of the Plantagenet family, in their representative Geoffrey, Earl of Anjou, father of Henry II. of England.

Artificial.

Artificial charges are,

1. *Ecclesiastical*. The *sacerdotal pall*, or pallium. We have an instance in fig. 148, the Arms of the See of Canterbury: *azure*, a staff in pale, *or*, bearing on its top a cross paty, *argent*, surmounted of a sacerdotal pall of the last, charged with four other like crosses fitchy, sable, edged and fringed of the second. Of mitres, crosiers, &c. we shall treat separately.

2. *Honourable*. This head would embrace all coronets, insignia, &c., but these will be treated separately. We shall therefore only notice one which is more especially confined to the escutcheon, *viz.* the *annulet*, a plain ring as in fig. 149. The Arms of the German Empire, now those of Austria, are *or*, on an eagle with two heads displayed, *sable*, each head within an annulet, *argent*, grasping with the dexter claw two swords, with the sinister a mound, an escutcheon bearing *gules*, a fess *argent*, impaled with *gules*, a tower *argent*.

3. *Military*. Heraldry having taken its rise entirely from military distinctions, is necessarily rich in military emblems; and its wealth has been especially augmented by the tournaments. Helmets, considered as distinctions of rank, will fall most properly under the division of marshalling.* But those military implements which occur as peculiar bearings on the escutcheon, may well be considered here. The *chaplet* somewhat resembles the crowns which have been already delineated. Fig. 150, *argent*, three chaplets, *vert*, are the Arms of Richardson.

The *morion* (quasi *Morian*, or Moorish, being used by that people) is a steel cap, represented in fig. 151, the Arms of Brudenell, *argent*, a chevron, *gules*, between three morions, *azure*. The Heraldic morion differs considerably from the article of defensive armour generally so called.

The tilting staff, used in jousts and martial exercises, contributes, with its parts, to the resources of Heraldry. It exactly resembles a lance, except that it terminates in what is termed a cronel, or coronal. We give a representation of one, after Gwillim, with the references. A is the *hur*, or rest for the hand. B, the place of the hand. C is the *vamplet*, a movable guard to the hand. D is the cronel. Fig. 152.

Fig. 153 is blazoned thus: *argent*, a chevron between three rests, *gules*, for Arthur of Clopton. The bearing is supposed to represent the rests into which the tilting staves were fixed; but they are by some armorists called *clarions*.

* The author of the *Synopsis of Heraldry* observes, "in this one example, you have all the common colours in Heraldry, and accidents either of lines, or things charged with or interposed, by ordinaries or ordinary charges."

* It may be worth observing, that when "a helmet" only is mentioned in blazon, it is always *an esquire's*.

A *pheon* is supposed to be the iron head (*ferrum*) of a javelin or arrow. It is a common bearing in armory. See fig. 154, *or*, a pheon, *azure*, for Sidney.

A *sweep*, or *balista*, is not, in strictness, exclusively Heraldic, yet from the rarity of its delineation, we may be allowed to exemplify it in the arms of Magnall, fig. 155, *argent*, a sweep, *azure*, charged with a stone, *or*. When a sword bears any charge on its point, it is said to be *enfiled* with it; and when any military instrument is spotted with blood, it is said to be *imbrued*.

4. *Pertaining to the Arts liberal.* The *billet*, supposed to be the representation of a folded letter. It is a long, rectangular parallelogram, placed paleways on the escutcheon. When the number of billets in a coat exceeds ten, the coat is called *billety*. See representation in fig. 156, the Arms of the Kingdom of the Netherlands, *azure*, billety, a lion rampant, *or*.

5. *Pertaining to clothing.* Under this head we may class the *manch*, (*manche*, Fr. sleeve,) a device of not unfrequent occurrence. It represents a flowing sleeve. See fig. 157, the Arms of Hastings, *or*, a manch, *gules*.

A shoe, called by the Irish a *brogue*, is sometimes found in armory, as in fig. 158, the Arms of Arthur of Ireland, *gules*, a chevron between three brogues, *or*.

6. *Miscellaneous.*

These we shall class alphabetically, simply referring the reader to the examples in the plates, as many of these devices cannot be clearly defined.

Fig. 159. *Gules*, three *arches*, *argent*, masoned, *sable*; the capitals and bases *or*. Name, Arches.

Fig. 160. *Or*, three *barnacles*, *gules*. Name, Barnack. The barnacle is supposed to be an instrument for holding and curbing horses.

Fig. 161. *Sable*, three fire *beacons*, *or*, inflamed, *proper*. Name, Dawntry.

Fig. 162. *Gules*, three *birdbolts*, *argent*. Name, Bottlesham. The birdbolt is represented diversely, as we have shown in this example; but one mode only ought to be exhibited in drawing the Arms.

Fig. 163. *Azure*, on a chevron, between three manacles, *argent*, three *bosses*, *sable*, the Arms of the Lorimers of London.

Fig. 164. *Argent*, three *boterols*, *gules*, the Arms of the Duchy of Angria. They are surmounted by the electoral bonnet. The boterol is the tag of a scabbard.

Fig. 165. *Gules*, a *Katharine wheel*, *or*, the Arms of Katharine Hall, Cambridge.

Fig. 166. *Gules*, three *chessrooks*, *argent*. Name, Walsingham.

Fig. 167. A *crampet*; the badge of Delawar. It has the same signification as the boterol.

Fig. 168. *Argent*, a heart, *proper*, within a *fetterlock*, *sable*, on a chief, *azure*, three boars' heads of the field. Name, Lockhart. An ancestor of this family carried the heart of Robert Bruce to Palestine; whence the bearing.

Fig. 169. *Sable*, a chevron between three *fleams*, *argent*, the Arms of the Surgeons of London. The fleam is an old kind of lancet.

Fig. 170. Per pale, *gules* and *azure*, a *fleece*, *or*, hooped and ringed; in chief, a lion passant gardant, between two fleur-de-lys of the second. Or the latter part may be blazoned, a lion of England between two fleur-de-lys of France. The Arms of the town of Tavistock.

Fig. 171. A *gurges*, *proper*. Name, Gorges. Water is Heraldically represented by equal alternate spaces of *azure* and *argent*. The spiral form indicates a whirlpool. It is enough, therefore, to blazon this *proper*; if the colours were any other they should be particularized.

Fig. 172. *Azure*, on a chevron between three *hatbands*, *or*, three *merillons*, *sable*, the Arms of the hatband makers of London.

Fig. 173. *Argent*, a *hayfork* between three mullets, *sable*, the Arms of Burton-Conyngham, Marquess of Conyngham.

Fig. 174. *Gules*, a chevron between three *Bowen's knots*, *argent*. Name, Bowen.

Fig. 175. *Dacre's knot.* The badge of Dacre.

Fig. 176. *Harrington's knot.* The badge of Harrington.

Fig. 177. *Lacy's knot.* The badge of Lacy.

Fig. 178. *Gules*, a tower, *argent*, masoned, *sable*, between two *Stafford knots* in chief, and a lion passant gardant in base, *or*, the Arms of the town of Stafford.

Fig. 179. *Argent*, a cardinal's hat, *gules*, the strings in *truelove*. These Arms are sometimes assigned to Sclavonia. But others are sometimes used.

Fig. 180. *Wake's knot.* The crest of Wake.

Fig. 181. *Gules*, a *lure*, *argent*. The Arms of Warre. The lure was thrown up in the air to attract the hawk back.

Fig. 182. *Argent*, a *lymphad*, *sable*, the Arms of the Earldom of the Isle of Arran. The lymphad is a small coasting vessel.

Fig. 183. *Argent*, a chevron between three *milrinds*, *sable*. Name, James, of Surrey. Three ordinary representations of the milrind are here given, although one only ought to be preserved in drawing the Arms.

Fig. 184. Per pale, *azure* and *gules*, two *Palmers' staffs* in saltire, *or*, the Arms of the Priory of New Nantwich. Two representations are here given of the Palmer's staff, although one only should be preserved in delineating the Arms.

Fig. 185. *Or*, *papillone*, *gules*. Name Grimball.

Fig. 186. *Azure*, three *pennyyard pence*, *proper*. Name, Spence.

Fig. 187. *Gules*, a *portcullis*, *argent*, nailed and pointed, *azure*, the arms of the Borough of Harwich.

Fig. 188. *Azure*, on a bend, *gules*, two garbs, *or*, on a chief, *sable*, a *Tau*, *argent*, the Arms of Thavies Inn, London.

Fig. 189. *Argent*, *treilly*, *gules*, nailed, *or*. Name, Bardonenche.

Fig. 190. *Sable*, on a bend between two *turrets*, *argent*, three pheons, *gules*. On a chief, *or*, a lion passant gardant, between two lozenges, *azure*. Name, Johnson.

Fig. 191. *Argent*, a cross engrailed, *gules*, between four *water bougets*, *sable*. Name, Bourchier. Four varieties of this charge are given in the example for the sake of illustration; but one only should be employed in the drawing. That in the dexter base is the most usual.

Fig. 192. *Argent*, a *wreath*, or torse, *argent* and *sable*, garnished with four hawks' bells, *or*. Name, Jocelyn.

Fig. 193. *Argent*, a fess *wreathy*, *azure* and *gules*. Name, Carmichael.

We have now, we believe, offered the reader a sufficient number of rules and examples in blazonry to enable him to blazon any escutcheon which may present itself. It is true that we have not crowded our plates with "glaziers' nippers," "hempbreaks," "woolcarders," &c. although those, and many similar implements, are

Heraldry. occasionally borne in Arms. Such devices undergo no change in the crucible of Heraldry; it is not, therefore, necessary to notice them here Ignorance of their form is not Heraldic but technical ignorance; and as the adoptive power of Heraldry is literally infinite, it would be impossible to trace her footsteps universally.

II. Marshalling. We are now, therefore, ready to enter on that branch of the system which is called *Marshalling*. As blazonry teaches the *description* of coat armour, so Marshalling is concerned with the *arrangement* of it. Blazonry furnishes the nomenclature, Marshalling the *rationale*, of Heraldry. Degrees of rank and affinity are distinguished by this department of the theory; and while the family coat remains unaltered, Marshalling discovers whether its peculiar owner is single or married, what is his distance from the inheritance, what is his rank in the state, and what honours or disgraces he has received. To Marshalling, therefore, Heraldry is indebted for most of its interest, and all its utility.

Arms in general are divided into perfect and imperfect. Perfect are, 1. Abstract, or warranted by regular descent. 2. Terminal, belonging to brethren of the right line. 3. Collateral, borne by brethren of the heir male. 4. Fixal, in third degree by right line of male heirs. Imperfect are, 1 Granted by the King with a lordship. 2. The gift of the King derived by a Herald. 3. The ensign of a Saracen won in field. 4. Heir female of elder branch. 5. Arms of bastardy.

In treating this subject we shall discourse, I. On family distinctions. II. On those of rank. III. On those of honour. IV. On abatements. V. On ensigns.

Family distinctions. Differences. I. The most simple family distinctions are those which are technically termed *differences*.

Ordinaries appear to have been anciently used as differences. But no traces of this practice reducible to any regularity are to be met with. The bordure was formerly extensively employed in differencing the members of a family. The eldest son bore the Arms alone; the other members added a bordure, ensigned with some expressive Device. But these Devices were not of general application, and were only intelligible to those previously acquainted with them. Whereas the differences now in use, are, under the same circumstances, *always the same;* except only in the Royal Family.

Bordures were formerly especially in use in the Royal Family: partly for differencing collateral branches, and not unfrequently illegitimate descendants. For the latter purpose, bordures *compony* were commonly used. Hamlin Plantagenet, natural brother of Henry II., bore for difference a bordure, *gules*, enurny of six lioncels passant, *or*. Henry Fitzroy, Duke of Richmond and Somerset, illegitimate son of Henry VIII., bore a bordure quarterly, perflew of ermine and countercompony, *or* and *azure*. The present Duke of Beaufort, who is descended from a natural son of Henry Beaufort, Duke of Somerset, grandson of John of Gaunt, bears round the Arms of that Prince a bordure compony, *argent* and *azure;* and the present Duke of Richmond, descendant of a natural son of Charles II., bears round the Arms of that Monarch a bordure compony, *gules* and *argent;* the latter spaces being ensigned with roses of the first. "A chevron is never to be seen in the armorial ensigns of Kings and Princes, nor as a brisure in the arms of their descendants." (Peacham *apud* Nisbet.)

"Marks of cadency,"* says Mr. Dallaway, (sec. 7.) "are discriminated from each other by nine several modes. 1. Change of the tincture of the field. 2. Of the essential figures. 3. By dividing the field by various partition lines. 4. By altering the position of the figures. 5. By diminishing their number. 6. By increasing them. 7. By adding others to the principal. 8. By quartering. 9. By transposing." But all these variations took place according to no settled rules. In illustration of this remark we may observe, that of the five sons of Arnold, Count of Arescot, the first bore his paternal arms, *or*, three fleur-de-lys, *sable*.

The second	*gules*	*argent*.
The third	*argent*	*gules*.
The fourth	*argent*	*sable*.
The fifth	*gules*	*or*.

Marshalling.

The present mode of differencing Houses is by what are called *marks of filiation or cadency*. These are small charges, but placed in the most conspicuous situation of the shield, and of whatever metal, colour, or fur, may be best adapted for discovering them to the eye. The eldest son bears a label of three points. Some ancient Heralds assign him a label of five points in the life of his grandfather, and one of three afterwards. But this practice is seldom employed at present; and the eldest son frequently never takes up his difference at all. The second son bears for his difference a crescent; the third, a mullet; the fourth, a martlet; the fifth, an annulet; the sixth, a fleur-de-lys; the seventh, a rose; the eighth, a cross moline; the ninth, a double quatrefoil. The second House, or second son's family, bear, respectively, the eldest a crescent ensigned with a label; the second, the same ensigned with a crescent; the third, the same ensigned with a mullet, &c. and so throughout. The third House bear respectively, the eldest a mullet ensigned with a label; the second, the same ensigned with a crescent, &c. &c. in like manner. These distinctions never belong to females, except in the Royal Family, where the whole system of brisures differs. The Royal Family do not bear the Royal Arms of right; they must be granted by the King, and regis tered in the College of Arms. Hence the frequency of bordures and other differences, formerly attached to the Royal Arms; and hence, too, the vacillation of modern differences in this family. All the brisures of the Royal Family are labels, which extend to females. Those of the present family, which we have engraved, were settled in the last reign, and can readily be blazoned by the student from what has been already delivered.

Marks of cadency.

When these brisures were invented is not easy to say. It is evident, however, that they were in use in the time of Edward I., as appears from that truly curious document, the Roll of Karlaverock, wherein it is asserted that Maurice de Berkeley bore a label because his father was alive.

E Morices de Berkelee,
Ki compaignis fu de cele alee,
Baniere de vermeille cum sanc,
Croissillie o un chievron blanc,
Ou un label *de asur avoit*
Porce que ces peres vivoit.

The *Book of St. Albans* says: "ther be vj differences in armys. ij for the excellent and iiij for the nobles. Labell and *emborduryng* for lordis. Jemews, molettys, flowre delyce and quyntfoyles for thee nobles."

Alliances. Females bear their paternal Arms on a lozenge before marriage; afterwards they bear them impaled with those of the husband on the sinister side, which is called *Impalement per Baron et Femme*. Widows bear the

* By marks of cadency, Mr. Dallaway here intends what we call *differences*.

Heraldry.

Arms of their husbands, impaled with their own, as when married, on a lozenge. When a widower marries, he marshals his own coat between the coats of his wives; his former wife's on the dexter. A most remarkable example is given by Gwillim in the Arms of Sir Gervase Clifton, who married *seven* times: the Arms of his wives are marshalled in seven compartments, four on the dexter, and three on the sinister side of his own coat.

In cases where the husband or wife enjoys some *peculiar* distinction, as when the husband is an Archbishop, Bishop, King of Arms, or Knight of some military order, or where the husband is of rank inferior to the wife, his escutcheon is placed on the dexter side; containing, if a Bishop, or King of Arms, the Arms of his See or office impaled with his own; if otherwise, his own Arms, decorated with his peculiar additions, if any; on the sinister the wife's escutcheon is placed, containing the Arms of her husband impaled with her own, and bearing her peculiar distinctions, if such there be. Where the wife was of noble blood, and the husband a commoner, it was formerly sometimes customary to marshal the wife's Arms to the dexter; but this is now obsolete.

Formerly, the husband and wife's Arms were *impaled by dimidiation;* that is, the dexter half of the husband's coat was impaled with the sinister of the wife's. Fig. 193 represents the seal of Margaret, second Queen of Edward I., which affords a specimen of this species of conjunction. In France this custom prevailed up to the time of the Revolution; but in England, it has been long since discontinued for the soundest reasons. In many cases it would have the effect of totally changing the Arms, and, in most, it would render those of each party unintelligible. For instance, the Arms of Stanhope are *quarterly, ermine and gules;* those of Waldegrave, are *party per pale, argent and gules;* the impalement of these coats *per baron et femme,* would destroy every vestige of both, leaving a new perfect coat, *gules, a quarter ermine.* Cantons and quarters would perish in the bearing of the female; many Heraldic animals would become equivocal; and where Arms were quartered, some of the coats would be totally lost. But before Heraldry had become systematized, such alterations were not deemed important, as conjunctions apparently more incongruous were sometimes made. Henry II., whose Arms were *gules,* two leopards passant gardant, in pale, *or,* on his marriage with Eleanor of Aquitain, whose Arms were *gules,* a leopard passant gardant *or,* united the two bearings into *gules,* three leopards passant gardant, in pale, *or.* And Philip the Bold, Duke of Burgundy, bore his own Arms dimidiated, and those of his wife in full.

The bordure and tressure may be considered the only cases in which the early practice is not entirely repealed; when these ordinaries are impaled, they are cut off on the side of the impalement.

Where the wife is an heiress or coheiress, her Arms are borne on an inescutcheon over those of her husband. In this case the inescutcheon takes the name of an *escutcheon of pretence.* But this arrangement is not allowed until the death of her father. In some ancient coats we find the Arms of the husband and wife *quarterly,* and even those of the wife in the first quarter. This is where a man receives a barony or any feudal tenure in right of his wife. And the same thing takes place wherever a surname is added. Thus the present Duke of Marlborough, whose original name was Spencer, having taken the name of Churchill, bears the coats of Churchill and Spencer quarterly.

Marshalling.

Where the father can place his wife's Arms on an escutcheon of pretence, the children may quarter them with the paternal coat; and from a series of descents of this description arises that abundance of quarterings which may be noticed in the shields of some noble families.

When there are only two coats to be quartered, the first in precedence or dignity occupies the first and third quarter; and the other quarters are supplied by the latter. If the number of coats be *odd,* the last quarter is generally supplied by the *leading* bearing, although foreign Heralds sometimes make a point in the base of the shield, which reduces the quartering to an odd number. This mode of marshalling enters into the Arms of Hanover, which form part of the bearings of the British Sovereign, where Brunswick, Luneburg, and Saxony are thus arranged.

When a widower marries, having no male issue by his late wife, his male issue by the second wife become, of course, his heirs; but a daughter by the former wife is heir to the mother; to indicate which she bears her maternal Arms, with all their quarterings, if any there be, with her paternal Arms on a canton. These rules afford a sufficiently clear outline of the general system of expressing alliances. Its refinements may be studied in "rules for the dewe quarteringe of Armes," a MS. in the Herald's College attributed to Glover, "the most diligent and skilful of his contemporaries," as he is called by Mr. Dallaway, who has published the "rules" in his *Inquiries into the Origin and Progress of the Science of Heraldry in England,* sec. 7.

These rules, however, do not apply to the reigning posterity of Sovereign Princes. The Sovereign, in assuming the National bearing, foregoes his private Arms. The quarterings of National Arms are regulated purely by National causes. The Sovereign's consort bears her Arms on a shield to the sinister of her husband's. But they are never quartered by succeeding Monarchs, as the effect of such a permission would be eventually to destroy international distinctions.

When a State consists of a number of *united* States, it is usual for the Prince to quarter their Arms in the order of their importance. When England and Scotland were first united, the Arms of those two Countries were *impaled* in the first quarter of the shield of Great Britain; an unusual, but significant arrangement, by which a marriage between the nations were implied. This distribution is now discontinued, and the Arms of Scotland form one of the quarterings of the shield of Great Britian. But where a Prince governs several *independent* nations, it is usual to put the Arms of the less considerable on escutcheons of pretence, ensigned with their proper crown or other emblem of Sovereignty. Thus the King of Great Britain, when Elector of Hanover, bore the Arms of Hanover on an escutcheon of pretence, surmounted of the electoral bonnet; and now as King of Hanover, he bears the same, but surmounted of the crown royal. This rule, however, has not been always minutely observed; as the Arms of Ireland before the Union, were not marshalled on an escutcheon of pretence, but formed, as they do now, one of the regular quarterings of the whole national escutcheon; and the same may be said of some continental bearings. "Arms of special concession are those of

Heraldry.

the Sovereign, or parts of them which cannot be granted by Heralds without a warrant from the Sovereign. And, secondly, such Arms take place before all other sorts of Arms. And, thirdly, Heralds are to record them in their registers, and to pass them on all solemnities."*

Hatchments and funeral escutcheons.

Hatchments and funeral escutcheons enter so much into the province of Heraldry that it will be necessary to notice them here. A funeral achievement,† vulgarly called hatchment, is a square piece of board or other material, the border of which is painted black, and which is suspended from one of its corners against the front of the house of a deceased person, where, after remaining one year, it is usually removed into the Parish church. The centre is filled up with the Arms of the deceased, painted according to rules hereafter to be set down. A funeral escutcheon is an oblong piece of cloth, similarly bordered, and hung lengthways on horses and funeral decorations. The centre is also occupied with the Arms of the deceased, and is subject to the same rules as the hatchment, which follow.

If the deceased be a bachelor, maid, widow, or widower, the whole ground is painted black. If a husband, the dexter half of the ground is painted black; if a wife, the sinister.

If the second wife of a widower, or second husband of a widow, then those parts of the ground which lie round the Arms of the deceased are painted black, and the rest white.

The black ground never touches the Arms of *an office;* because that is not in its nature mortal.

A little white space is also sometimes left for the crest when it is of any dark colour. When the deceased is the last of the family, the death's head supplies the crest.

Distinctions of rank.

2. All ranks are not *minutely* distinguished by Heraldic symbols. We shall give, however, the degrees of precedency as established in England, specifying as we proceed, those which are particularly noticed by Heraldry. But as crowns, coronets, and helmets are among the most prominent distinctions of rank, it may be useful first to say a few words on the manner of arranging them.

As the crest should always be placed on the helmet, either on a wreath, small ducal coronet, or chapeau, which are considered as making part of the crest; so, where a helmet and coronet are to be used together, the helmet should always be placed uppermost; but in the cases of the Monarch and Prince of Wales, who bear crowns, the crown is placed uppermost, and the crest situated above it, without any intervening object. The crests of the rest of the Royal Family are placed on small Prince's coronets without caps, instead of wreaths. All helmets may be adorned with what are called *mantlings* or *lambrequins*. The terms are commonly used indiscriminately, but are not synonymous in their original acceptation. The mantling was originally a flowing piece of cloth encompassing the back of the helmet; the lambrequin represents the same cloth considerably hacked in encounters, and fluttering in all directions. The latter is most usually employed by modern Heraldry painters. It was formerly the custom to represent *all* lambrequins *gules, doubled* (*i. e.* lined) white,* except those of the Sovereign, which were *or*, doubled ermine. But the College of Arms have lately decided in Chapter that the two first tinctures named in the blazon of the escutcheon should form those of the lambrequins; the metal always being inside. But if a fur be one of the two first tinctures, then the colour predominating in the fur is to stand instead of the fur itself. In the case of a field vair, the lambrequins should be *argent* and *azure;* and, in general, where equal tinctures compose the field, the lambrequins should exhibit those tinctures. The same rules apply to the composition of the wreath; which should always begin with metal, and end with colour.†

Marshalling.

There is a kind of mantling much in use with coach-painters, which, though supported by the authority of Edmondson, we cannot but deem unclassical. This mantling embraces the whole achievement, and if belonging to the Sovereign, is of gold lined with ermine; if to a Peer, crimson velvet lined in like manner; if to a Commoner, the same lined with white satin. At Edmondson's suggestion some of the Peerage agreed to adopt the following distinctions in their mantlings, corresponding to those adopted on their Coronation robes; a Baron was to have two timbers of ermine; a Viscount, two and a half; an Earl, three; a Marquess three and a half; &c.

If two or more crests are to be placed on the same escutcheon (which is allowable where Arms are quartered) they must be set on suitable helmets; the same rule and practice are observed when a Sovereign governs several *independent* Monarchies. In these cases, if the number of helmets be even, the dexter half must be turned to the sinister, and *vice versâ;* if odd, the centre helmet must be *affronty*, or full faced, and the others as before. In the last case, the helmet of the family, or leading dignity, occupies the centre; and those of nearest dignity are marshalled nearest, dexter and sinister *alternately;* otherwise the dexter is the place of honour, and the inferior crests are marshalled to the sinister.

Precedency of men.

The following are commonly received as the degrees of precedency among men.

1. The King. His armorial ensigns as Sovereign are the crown of the United Kingdom; and a full faced helmet of six bars, all of gold, damasked *gules* between the bars. It is not usual, but Heraldic and allowable, to marshal behind the Arms of the Sovereign the different sceptres to which he is entitled. The crown borne in Arms is that with which the Coronation ceremony is performed. That of Edward the Confessor was supposed to be preserved in Westminster Abbey until the time of Charles I. The crown then used was sold by the rebels. At the Restoration a new crown was made, consisting of a rim of jewelled gold, resting on a border of ermine. On this rim arose four crosses paty, and four fleur-de-lys alternately from the crosses. From each cross ascended a richly jewelled arch, and at the intersection of these arches was affixed a pedestal supporting a mound, on which stood a cross of gold richly ornamented with precious stones. The cap

* Nisbet, *Essay on Armoury*, p. 146.

† The word achievement, separately taken, signifies a *whole* armorial bearing; escutcheon, helmet, crest, supporters, &c. &c. The word hatchment, however, has been restricted by custom to an achievement painted for funeral purposes.

* White in the interior of mantlings was not blazoned *argent*, not being taken for a metal, but a fur; the skin of the limit. See Gwillim, sec. 1. ch. iii. but the modern system has changed the nature of the blazon.

† Yet fur was certainly used in doublings formerly; witness that very remarkable instance adduced by Gwillim, ch. v. sec. 6. "I find in the church of Gravenest, in the county of Bedford, in window, a mantle *sable*, doubled *verrey*," [vair or vairy.]

Heraldry. within the crown is of purple velvet, lined with white taffeta, and turned up with ermine. The King and Princes use a full-faced helmet of gold, with six bars, and damasked with crimson.

2. The Prince of Wales. He is distinguished by a coronet, differing only from the imperial crown in being closed with *two* arches only, springing from opposite crosses. He also bears as a badge a plume of feathers surrounded by an open coronet of alternate fleur-de-lys and crosses, and bound by a riband, bearing the motto *Ich dien;* in commemoration of the capture of John, King of Bohemia, who bore this device, by Edward the Black Prince, at the battle of Crecy. The Prince of Wales bears also a mark of filiation, as assigned by the King, over the Royal arms.

3. Princes of the Blood according to seniority. Their coronets resemble that of the Prince of Wales, except that they are not closed.

4. The King's brothers.

5. The King's uncles.

6. The King's grandsons.

7. The King's brothers' or sisters' sons.

8. Husbands of Princesses.

All these (except the latter, who use their paternal distinction) use a coronet of four alternate crosses paty, and four strawberry leaves.

9. The Archbishop of Canterbury, Lord Primate of all England. He impales the Arms of his See with his own. He bears a mitre, as represented in fig. 147, but not surrounded with a ducal coronet, as some writers pretend. The crosier, a kind of sceptre or *lituus*, terminating in a curve resembling a shepherd's crook, and emblematical of his pastoral charge, is not necessary to the delineation of Episcopal Arms, but is frequently found at the back of the Bishop's shield, as in fig. 147, as also the Bishop's staff.

10. The Lord High Chancellor, or Lord Keeper of the Great Seal. He bears behind his shield in saltire two maces of England, as in fig. 144.

11. The Archbishop of York, Primate of England. As the Archbishop of Canterbury.

12. Lord High Treasurer.

13. Lord President of the Privy Council.

14. Lord Privy Seal.

15. Lord High Constable.

16. Earl Marshal. He bears behind his escutcheon two bastons in saltire, as in fig.*52.

17. Lord High Admiral.

18. Lord Steward of the Household.

19. Lord Chamberlain of the Household.

The last five take precedence of all of their degree; *i. e.* if Dukes, they precede all Dukes; if Marquesses, all Marquesses, &c.

20. Dukes according to their patents. The ducal coronet is ornamented with eight strawberry leaves, five of which are seen in Heraldic drawings. Crests are sometimes placed on what is called a ducal coronet, instead of on a wreath; in this case the strawberry leaves are supposed to be four in number, and three are visible in the drawing. See the coronet in fig.*52. Dukes, and all Peers, are entitled to a steel helmet in profile, with bars of gold, damasked crimson.

21. Marquesses according to their patents. The Marquess's coronet is adorned with four alternate strawberry leaves, and as many pearls. In drawings, three of the former, and two of the latter, are exhibited. See fig. 172.

22. Dukes' eldest sons.

Marshalling. 23. Earls according to their patents. Earls are not supposed to have always used their present coronets. The most ancient instance of an Earl using a coronet at all is, according to Sandford, John of Eltham, Earl of Cornwall, on whose monument in Westminster Abbey it is represented, composed of greater and lesser leaves. But the present Earl's coronet is ornamented with eight pearls, raised on pyramidal slips of gold, alternating with eight strawberry leaves. See it in fig. 131. Before the introduction of the coronet, the inferior Nobility wore a chapeau, or cap of maintenance, represented in the Arms of Abtot, Earl of Worcester, fig. 99.

24. Marquesses' eldest sons.

25. Dukes' younger sons.

26. Viscounts according to their patents. The Viscount's coronet is adorned with sixteen pearls, nine of which appear. This canon we lay down on the authority of the Earl Marshal's order at the Coronation of George III. The usual representation, however, contains seven pearls only. We have shown it in the Arms of Lord Bacon, but this is an anachronism. Fig. 144.

27. Earls' eldest sons.

28. Marquesses' younger sons.

29. The Bishop of London. His Heraldic distinctions as the Archbishop of Canterbury.

30. The Bishop of Durham. His mitre is surrounded by a ducal coronet, in token that he is a Prince Palatine. He impales the Arms of his See.

31. The Bishop of Winchester. He is Prelate of the Order of the Garter. He therefore wears the distinctions of that Order. His Arms, impaled with those of his See, are surrounded by the Garter, which is of blue, bearing in gold the motto *Honi soit qui mal y pense.*

32. Bishops according to priority of consecration. The Bishop's distinctions are as those of the Archbishop of Canterbury. If a Bishop be principal Secretary of State, he takes precedence of all other Bishops, unless they hold a more elevated station in the Royal service.

33. Barons according to their patents. Till the time of Charles II. the Barons wore a plain cap of crimson velvet faced with ermine. Since, they have borne a coronet, ornamented with six pearls, four of which appear in drawings. If a Baron be principal Secretary of State, he takes precedence of other Barons, unless they hold higher situations.

34. Speaker of the House of Commons.

35. Viscounts' eldest sons.

36. Earls' younger sons.

37. Barons' eldest sons.

38. Knights of the Garter. See their distinctions under the Bishop of Winchester. All Knights whatsoever are entitled to bear a steel helmet, open, without bars, and damasked crimson. See fig. 153.

39. Privy Councillors.

40. Chancellor of the Exchequer.

41. Chancellor of the Duchy of Lancaster.

42. Lord Chief Justice of the King's Bench.

43. Vice Chancellor

44. Master of the Rolls.

45. Lord Chief Justice of the Common Pleas.

46. Lord Chief Baron of the Exchequer.

47. Judges and Barons of the Exchequer, of the degree of the Coif, by seniority.

48. Bannerets made by the King in person. This was the highest rank in ancient Chivalry. The ordinary Knight, a Knight *Bachelor*, (*bas-chevalier*,) bore in the

Heraldry.

field a pennon, or long streaming flag, on the end of his lance. On occasions of remarkable prowess, the Monarch summoned the Knight to his side, and, cutting off the long streaming part of the pennon, converted it into a square flag, or banner, which the Knight ever after bore, and was termed a Knight Banneret.

49. Viscounts' younger sons.

50. Barons' younger sons.

51. Baronets. Baronets bear, as Knights, an open helmet of steel, without bars, damasked crimson. English and Irish Baronets also bear in the dexter or middle chief, or at the fess point, a small escutcheon, *argent*, ensigned with a sinister hand erect, apaumy, *gules*. See fig. 29. This is called the badge of Ulster. Baronets were created by James I. during the troubles in Ireland, when the Province of Ulster was, more especially, in a state of insubordination. They offered their lives, property, &c. for the defence of the Kingdom. Originally their number was but 200, but since it has been unlimited. Baronets were also created by Charles I. in pursuance of his father's plan, in order to encourage the colonization of the Province of Nova Scotia; these Baronets bear what is called the badge of Nova Scotia, *viz.* an escutcheon, borne as by the Baronets of England and Ireland, *argent*, a saltire *azure*, surmounted by an inescutcheon of Scotland, royally crowned.

52. Bannerets not made by the King in person.

53. Knights Grand Crosses of the Bath. They bear their arms encircled with a red riband, bearing in gold the motto, *Tria juncta in uno*. The collar and jewel of the Order may be added. See 38.

54. Knights Commanders of the Bath. See 38.

55. Knights Bachelors. See 38.

56. Companions of the Bath.

57. Eldest sons of the younger sons of Peers.

58. Baronets' eldest sons.

59. Knights of the Garter's eldest sons.

60. Bannerets' eldest sons.

61. Knights of the Bath's eldest sons.

62. Knights' eldest sons.

63. Baronets' younger sons.

64. Esquires of the King's body. All Esquires use a helmet of steel in profile with the visor closed. See fig. 113.

65. Gentlemen of the Privy Chamber.

66. Esquires of the Knights of the Bath. See 64.

67. Esquires by creation. See 64.

68. Esquires by office. Kings of Arms, Heralds, and Pursuivants are Esquires by office. If an inferior Heraldic officer be a Knight, the superior still takes precedence. The costume of these officers is a tabard of the Arms of the Sovereign; that of the Kings is made of embroidered velvet; that of the Heralds, of satin; that of the Pursuivants, of sarcenet. The Kings wear a crown, as represented in fig. 110, composed of a circlet of sixteen acanthus leaves, oak leaves, or feathers, (for respecting what they are, authors differ,) nine of which are visible in painting. Round it is inscribed *Miserere mei, Deus, secundum magnam misericordiam tuam.* Both Kings and Heralds wear a collar of SS; on this are two portcullises of silver gilt for the Kings, and of plain silver for the Heralds. On the breast is suspended the Union Badge, and on the back the White Horse of Hanover. The Pursuivants have no collars. Each King has Arms of office, which always consist of *argent*, a St. George's cross, but the chiefs vary in the following manner; Garter, *azure*, within a Garter of the Order, between a lion of England and a fleur-de-lys of France, a ducal coronet, *or*. Clarenceux, *gules*, a lion of England crowned, *or*. Norroy, per pale, *azure* and *gules*, a lion of England crowned between a fleur-de-lys and a key, *or*. See 64.

Marshalling.

69. Younger sons of Knights of the Garter.

70. Younger sons of Bannerets.

71. Younger sons of Knights of the Bath.

72. Younger sons of Knights Bachelors.

73. Gentlemen entitled to bear arms.

Precedency of women.

The degrees of Precedency among females are as follows:

1. The Queen. Her crown is that of the King. And in general it may be observed, that the coronets of females are those of the corresponding dignity among men. Helmets never accompany female bearings.

2. The Princess of Wales.

3. King's daughters.

4. Wives of the King's sons.

5. Wives of the King's brothers.

6. Wives of the King's uncles.

7. The King's grandaughters.

8. Wives of the eldest sons of Royal Dukes.

9. Daughters of Royal Dukes.

10. Wives of the King's brothers' or sisters' sons.

11. Duchesses.

12. Marchionesses.

13. Wives of the eldest sons of Dukes.

14. Daughters of Dukes.

15. Countesses.

16. Wives of the eldest sons of Marquesses.

17. Daughters of Marquesses.

18. Wives of the younger sons of Dukes.

19. Viscountesses.

20. Wives of the eldest sons of Earls.

21. Daughters of Earls.

22. Wives of the younger sons of Marquesses.

23. Baronesses.

24. Wives of the eldest sons of Viscounts.

25. Daughters of Viscounts.

26. Wives of the younger sons of Earls.

27. Wives of the eldest sons of Barons.

28. Daughters of Barons.

29. Maids of Honour.

30. Wives of the younger sons of Viscounts.

31. Wives of the younger sons of Barons.

32. Wives of Baronets.

33. Wives of Knights of the Garter.

34. Wives of Bannerets.

35. Wives of Knights of the Bath.

36. Wives of Knights Bachelors.

37. Wives of the eldest sons of the younger sons of Peers.

38. Wives of the eldest sons of Baronets.

39. Daughters of Baronets.

40. Wives of the eldest sons of Knights of the Garter.

41. Daughters of Knights of the Garter.

42. Wives of the eldest sons of Bannerets.

43. Daughters of Bannerets.

44. Wives of the eldest sons of Knights of the Bath.

45. Daughters of Knights of the Bath.

46. Wives of the eldest sons of Knights Bachelors.

47. Daughters of Knights Bachelors.

48. Wives of the younger sons of Baronets.

49. Daughters of Knights.

50. Wives of the Esquires of the King's body.

51. Wives of the Esquires to the Knights of the Bath.

Heraldry. Abatements

52. Wives of Esquires by creation.
53. Wives of Esquires by office.
54. Wives of the younger sons of Knights of the Garter.
55. Wives of the younger sons of Bannerets.
56. Wives of the younger sons of Knights of the Bath.
57. Wives of the younger sons of Knights Bachelors.
58. Wives of Gentlemen entitled to bear arms.
59. Daughters of Esquires entitled to bear arms.
60. Daughters of Gentlemen entitled to bear arms.

3. The crowns mentioned in the early Historical part of this Essay are distinctions still in use. Their application has been already noticed. They are marshalled above the helmet, coronet, &c. but usually below the crest.

Distinctions of honour.

The Arms of the Sovereign, or part thereof, are sometimes allowed to be borne as marks of peculiar favour. Richard II. is said to be the first who granted Arms of augmentation. Ordinaries, too, are added, of which the most usual are the chief and the canton. These ordinaries are generally ensigned with some significant device, or a portion of the Royal Arms as before. Thus Lord Nelson's paternal coat was augmented by a chief wavy *argent*, bearing a palm-tree between a ship at sea and a castle, all *proper;* the Arms of Thomas Lord Roos, created in 1525 Earl of Rutland, which were originally, *or*, two bars, *azure*, a chief *gules*, were thus altered: *or*, two bars, *azure*, a chief quarterly, first and fourth, two fleur-de-lys of France, second and third, a lion of England; and the Arms of John Churchill, Baron of Eymouth in Scotland, (*sable*, a lion rampant, *argent*,) were augmented by James II. with a canton *argent*, charged with a cross of St. George.

Henry VIII. was, in the highest degree, lavish of Heraldic distinctions. On Ann Boleyn he conferred the Arms of the Earls of Lancaster, of Angoulême, and Guienne, which she quartered with those of the alliances of her own family; but her family coat itself was dropped. To Jane Seymour he gave a coat of augmentation, *or*, on a pile, *gules*, between six fleur-de-lys, *azure*, three lions of England, which is quartered by the Seymours, Dukes of Somerset, to the present day. To Katharine Howard he assigned two whole coats, to be quartered with her own, *viz.* I. *azure*, three fleur-de-lys, in pale, *or*, on two flanches *ermine*, as many roses *gules;* and II. *azure*, two lions passant gardant, between four demi-fleur-de-lys, *or*. Lastly, to Katharine Parr he granted the following coat, to be quartered with her proper one: *argent*, on a pile, between six roses, *gules*, three others of the field.

4. While we are on the subject of Marshalling, we may be expected to notice what Menestrier calls *soltises Anglaises; abatements*, or symbols of disgrace introduced into Arms. In this respect we fear we are too open to the sarcastic Frenchman's assaults. Abatements, of course, are never used, except in a case which we shall presently mention; and in this, if they are follies, they are shared by our continental neighbours.

Abatements must always be tawny or murry, except only bastons. As it would be impossible or invidious to present the reader with *real* coats containing these abatements, we must give them separately.

Fig. 195 is a *delf*, or quadrant spot. If this bearing be repeated in the escutcheon, or be of metal, or charged, it is not to be taken for an abatement. This is the sign of a revoked challenge.

Fig. 196 is an *escutcheon reversed*. It belongs to him who uncourteously treats a lady, or deserts his Sovereign's banner.

Marshalling.

Fig. 197 is a *point dexter parted*, and belongs to a boaster.

Fig. 198 is a *point in point;* the designation of one who behaves slothfully in the field.

Fig. 199 is a *point champain*. It belongs to one who kills a prisoner of war.

Fig. 200 is a *gore sinister*. It is given to effeminate persons.

Fig. 201 represents two *gussets*, dexter and sinister. Both are abatements; the former for voluptuousness, the latter for intoxication.

The *plain point*, assigned for lying, is exemplified in fig. 3, where it forms the lowest division of the escutcheon.

The baston, already noticed, is the abatement of a bastard, and the only abatement used.* It is, moreover, hereditary, and can only be removed by the King. A bastard may bear his mother's Arms without this abatement; but if he bear his father's, he must add it. The illegitimate descendants of some of our Kings have thought fit to incur this blemish for the sake of retaining the Royal Arms; an instance of which we have in the family of Fitzroy, Duke of Grafton, whose coat will be found in fig. 64. The baston must not be borne of metal, except by the descendants of Kings.

A traitor's coat is represented reversed, and is not blazoned by the *technical*, but *proper* names of the tinctures, except where such tinctures are themselves technical.

Ensigns.

5. Ensigns are either national or personal. The antiquity of the former has been already shown; and they still retain some peculiarities of ancient Heraldry. They are, for the most part, different altogether from the Arms of the Country which they represent; except what are called "Standards," which are usually the same. The ensigns of the Norman Monarchs appear to have been wholly different from the National bearing and from each other. *Argent*, a cross, *gules*, was, at an early period, borne in the English army, and considered hence the National banner. In nothing is the Heraldry of National ensigns more decidedly distinguished from that of National escutcheons, than in the particular that while ordinaries rarely enter the latter, they are as rarely absent from the former. This circumstance also draws a wide distinction between the ancient and modern Heraldry of ensigns; and we may observe, as another distinction of this department of modern Heraldry, that colour, as in the escutcheon, so in the banner, is an essential feature. Yet the rules which prescribe the different combinations of colours and metals in ordinary modern Heraldry, have no application in the theory of ensigns.

Standard.

The largest species of ensign is the Standard, commonly of a square form, but now somewhat oblong. It was generally used by Sovereign Princes, or by the Commanders of armies.

Gonfanon.

The Gonfanon, as used anciently, did not, according to Dr. Meyrick, resemble the species of ensign commonly termed by that name in modern Heraldry, but "was fixed in a frame made to turn like

* "All the bastardis of all cotarmuris shall bere a fesse, sum call hit a baston of oon of the iiii dignites of colouris, except the bastarde of the fixiales, and the bastarde of the brethyrne of the cheve blode: where theritaunce is deparded to evych brothir e like moch, theys bastardis shall add more bagy to his armys, or take away a bagy of armys."—*Book of St. Albans.*

Heraldry. a modern ship's vane, with two or three streamers or tails. The object of the Gonfanon was principally to render great people more conspicuous to their followers, and to terrify the horses of their adversaries; hence the Gonfanon became a mark of dignity." These Gonfanons appear to have differed little from the Pennon. We have given some representations of ensigns called by ancient writers Gonfanons and Pennons. Yet that there was *some* difference is evident from the language of Wace:

Pennon.

Li barons ourent gonfanons,
Li chevaliers ourent penons.

The difference was, perhaps, rather in the charge than the form. Indeed, the Gonfanon appears to have anciently sustained the office of the banner, to indicate the presence of some important person; while the Pennon was borne by every ordinary Knight, as well as by the more powerful feudal dignitaries.

A writer in the *Retrospective Review*, to whose observations this department of our Treatise is greatly indebted, observes, "When the English army was composed of tenants *in capite* of the Crown, with their followers, it appears that such tenants were entitled to lead them under a banner of their Arms; but the precise number of men so furnished, which conferred this privilege, has not been ascertained. Judging, however, from the *Siege of Karlaverock*, it would seem that early in the XIVth century there was a banner to every twenty-five or thirty men at arms."*

"When the tenant *in capite* was unable to attend in person from sickness, or from being otherwise engaged in the King's service, he nevertheless sent the quota of men at arms and archers, for which, by the tenure of his lands, he was engaged; and his banner was committed to the charge of a deputy of equal rank to his own. Thus at Karlaverock, the Bishop of Durham, being prevented from attending by some public duty which detained him in England, he sent one hundred and sixty of his men at arms with his banner, which, it is worthy of remark, was simply that of his paternal Arms, without any reference to those of his See; which tends also to prove that in the field he was considered merely as a temporal Baron."†

"The most curious fact on the subject which is established by the Poem is with respect to the banner of an Earl; for it is evident that it was considered to belong to the dignity rather than to the individual. Ralph de Monthermer, the Earl of Gloucester in right of his wife, Joan, daughter of King Edward I., and widow of Gilbert de Clare, Earl of Gloucester, by which title he was repeatedly summoned to Parliament, led his followers on that occasion under the banner of Clare, the Earl of Gloucester, whilst he was himself vested in a surcoat of his paternal Arms, which he also bore on his shield." "The fact is the more worthy of attention, because it corroborates the opinion that he possessed the dignities of Earl of Gloucester and Hereford solely in right of his wife; for on her death in 1307 he ceased to enjoy them, and they were assumed by Gilbert de Clare, her son by her first husband; Montherner being summoned to the very next Parliament as a Baron only."‡

Banners. Corporations and Fraternities, secular and religious, had also their respective Banners; which, on particular occasions, were paraded in the field. Marshalling.

The Banner was not only displayed on a staff, but was also appended to the trumpets of the owner. It was borne, too, by Heralds, when acting on the part of the Prince or Chief to whom it belonged.

Beside this Banner, a Knight might have what was called his Standard, which differed wholly from the species of flag now known by that name; since, while the modern Standard universally displays the Arms, the early one always bore the badge or cognizance. The Standard was somewhat longer than a Banner, but not so deep. Both Standard and Banner led 100 men.

The Pennon, like the Banner, contained armorial bearings; every Knight having the command of 100 men was allowed to bear one of these. We have already spoken of the manner of creating a Banneret.

The Guidon, or, as some write it, Guidhomme, was the ensign of an esquire or gentleman, and conducted 50 men. It bore no Arms, but simply the crest, cognizance, or Device. Guidon.

The Pennoncell might be used by any individual. It bore the cognizance, or "avowry," *i. e.* the name of the tutelar saint of the bearer. Pennoncell.

This interesting department of Heraldry has in this Country almost wholly fallen into decay. At the funeral of Lord Nelson great attention was paid to ensigns, as well as to every other branch of the study; but at that of the late Duke of York the utmost disregard of the subject prevailed.

We here conclude our summary of this curious and not unprofitable theory. Prejudices, founded on generous and noble sentiments, but now fast decaying before opinions, which, if less prejudiced, are less honourably grounded, have exalted, it must be allowed, the pursuits of Heraldry to a very exaggerated and unmerited dignity; but there are extremes in this as in all subjects, and the contempt which the elegant fabric of Heraldry is fated to experience at the hands of utilitarians, is equally discreditable to modern taste and to modern knowledge. Heraldry is, at least, a very beautiful structure; and, if material utility must be the standard of Good, Heraldry, even here, may advance her pretensions. For if the maintenance of a high spirit of honour, attachment to existing institutions, and the preservation of those gradations to which Society is indebted for all its symmetry and solidity, be objects of importance, Heraldry has valuably contributed to all. Heraldry, too, was chief handmaid of the ornamental Arts in dark and barbarous Ages: and whatever may be said of the pedantry of early Heralds, who crowded their Treatises with information wholly alien from their subject, yet this alone is good evidence that a Herald, as such, was expected to be a man of various erudition; inasmuch as his very Science led him to treat of objects almost universal. Heraldry, too, has been the means of determining genealogies and inheritances through very remote conclusions: its use in illustrating History, both as regards customs and facts, must be allowed to be considerable; and its study, therefore, can never be unworthy the Historian, the Biographer, and the man of Letters; while the Philosopher may well be required to tolerate what has proved in many instances of essential value to Society.

* *Retrospective Review, Second Series, Oct.* 1827.
† *Ibid.* ‡ *Ibid.*

NUMISMATICS.

Numismatics.

Origin of the Art of Coinage.

Nature and fabrication of the earliest Coins.

Prior to the invention of stamped money, commerce was carried on by the exchange of commodities, and the little metal employed probably consisted of pieces cut without regard to shape but regulated by weight; for all large, and even for small sums recourse was, consequently, had to scales, and, if we take into consideration the diversity of weights existing in Countries apart from each other, we shall readily perceive the inconvenience attending this original barter. On the earliest Grecian Coins a variety of types appear which are derived, as we shall shortly explain, from circumstances connected with the Country; it will not then be unreasonable to suppose that each City having adopted some particular emblem, affixed it to the pieces of metal there struck, at once designating the City to which they belonged, and indicating in a manner their value. This stamping of pieces of metal was, in fact, a public testimony that they were of the weight required, and might pass in traffic without trial by scales. It will be obvious, that it was sufficient to affix the stamp on one side only of the Coin, but a difficulty arose as to the means of effecting this; if the metal were laid on an even surface, the dye containing the device placed upon it, and the hammer resorted to, the pieces would in all probability be displaced during the operation, and the impression would thus be rendered imperfect. At the present day, the piece of metal, or *planchet* as it is termed, is placed within a steel collar corresponding with it in size; but this being a contrivance unknown to the Ancients, the method they adopted may be thus explained. Deep grooves, generally two in number, were cut out of the surface of one extremity of a bar of metal or a puncheon, by which means projections were formed and the planchet was then laid thereon; in this manner, after a single blow of a hammer, the metal would be partially secured and retained in its place until the operation of striking was completed. From the great relief given to the early Coins, the type could only be brought out by repeated blows, and their extreme thickness and globosity leads us to suspect they were, in the first instance, of a spherical form. The Coins produced after the manner we have just described, would bear on one of the sides the type of the City rudely executed, and on the other several deep indentations made by the fixed puncheon; these depressions most frequently partook of a quadrilateral form, and were four in number; hence after the lapse of a few years, when the Coins were characterised by a greater degree of neatness, the reverses represented a square divided into four equal parts. The lines, which at first were of considerable breadth, insensibly disappear, and about the year 500 B. C. but one slight depression of a square form remained occupying the field of the Coin; this compartment served for the introduction of a second symbol, and instances occur in which the former divisions are slightly indicated on the surface.

Coins of Græcia Propria.

Plate I Fig. 3.

We have as yet noticed but one variety of indentations on the reverses; for although about 500 B. C. the indented square prevailed throughout Greece, numerous modifications were employed before the dye assumed this simple character. Instances occur of Coins in which the dye is circular, but divided like the preceding into four parts; others there are, also, in which the bounding figure is square, but the cavities are triangular, from the cross lines running diagonally.

Fabric of the most ancient Coins.

The Coins of some Cities of Asia Minor present a singular variety; in these the surface on which the metal was placed had angular pieces cut out, not the deep grooves noticed above; as it is difficult to convey in words an idea of this modification, we have given a representation of the form of the end of the instrument by which, possibly, it was effected. The difference in the appearance of the Coin thus formed will be, that instead of the area being divided as before by bands, the separation is effected by an angle of each department being considerably depressed. The improvements resulting from this variety in the dye may be easily conceived; in the course of time it was found unnecessary to give so great a depth to the depressions, which therefore gradually became less apparent, and about the year 460 B. C., but four slight triangular indentations are seen, disposed like the sails of a windmill. There are a few Coins in which the triangular parts are given in relief, possibly suggested by the preceding variety, and admirably adapted for fixing the planchet during the operation of forming the type. The depressions were by no means limited to four, although that number is by far the most frequent; on the Persian Coins denominated *Darics* but one indentation appears, of an irregular form, and on ancient Coins ascribed to the city of Ephesus there are two; on early Coins of Dyrrachium and Corcyra three cavities may be seen, on those of Egina they are, with scarcely an exception, five in number, and in those of Sicily yet more numerous. Two varieties, more complicated, occur of Bœotia and Thebes; on a few Coins of these Cities the square is divided both by transverse and diagonal lines, thereby forming the triangular depressions before alluded to.

Plate II. Fig. 10. Coins of Asia Minor coeval with the Lydian Kingdom. Fig. 11.

Fig. 12.

Plate I. Fig. 1.

The first attempt at the introduction of types on both faces of the Coins, appears in the insertion of some small object in one of the compartments. On Coins of Egina a Dolphin is common; and in a few of Syracuse, the square divided into four parts may be recognised, and in the centre a circular cavity is reserved containing a head of Proserpine.

Fig. 2.

Such are the combinations in early Coinage which possess chief interest, and these are as many as our limits will permit us to detail. There are a few Cities on the Coins of which the progressive stages of the Art may be traced, as is the case with those of Chios; some Cities also retained to themselves a peculiar modification; thus in the colonies constituting Magna Græcia, a singular method was practised, but one equally effectual for securing the planchet; the Coins of Metapontum, Tarentum, Crotona, Sybaris, and Posidonia, are hollowed on the reverse with the obverse in relief with the same object: these Coins, termed *incused*, we may presume to have been struck at the period during which the simple square dye prevailed in Græcia Propria. One advantage gained by this method was, that these

Coins of Magna Græcia.

Numismatics.

Coins required a smaller quantity of metal; the pieces exceed in their diameter the ordinary dimensions of Greek Coins, but are extremely thin.

Plate I. Fig. 5.

The Cities of Maronea, Abdera, Acanthus, Amphipolis, and Ænos, situated on the coasts of Macedon and Thrace, near to their junction, have commonly on their Coins a double square, a peculiarity which being found to exist on Coins of the Macedonian King, Alexander I., determines their age. (500 B. C.) On the reverses of these Coins the divided square appears, considerably reduced in size, around it the name of the City is inscribed, and there is a second square beyond. The divisions of the inner square were afterwards omitted when some device was introduced, and in a short time the inner square was altogether dispensed with.

Coins of Macedonia.

Fig. 4

Having in the preceding remarks shown the possibility of effecting a chronological arrangement of these curious Coins by a careful examination of the indented marks, it may be proper to state, that the interpretation we have assigned to them is not altogether in accordance with the opinions hitherto received. In hazarding these conjectures we would by no means insist that the various figures certainly originated in the manner we have described, but we think the supposition consistent throughout, and neither forced nor improbable.

PART I.—Ancient Coins.

- Grecian . . { Civic. / Monarchic.
- Roman . . { Consular . { Roman *Asses*. / Coins of the Families. }
  - Imperial . { Roman. / Grecian. { Provinces. / Colonies & *Municipia*. } }
  - Medallions { Roman. / Grecian. }
- Barbarian. { European. / Asiatic. / African. }

Sect. I.—Grecian Coins.

I. Grecian Civic Coins.

The Coins of the Greek Cities may be subdivided into those 1. of Græcia Propria, and the Islands; 2. of the Greek Colonies; and 3. of the Greek Cities in Asia. The first two divisions embrace Coins from the invention of the Art of striking them until the subjugation of the Country by the Romans. The third division is of minor importance, comprehending the Coins of Cities founded by Alexander the Great while prosecuting his conquests in the East. This class terminates with the Augustan Age, and includes many Cities of Asia Minor, Arabia, Palestine, Syria, and Mesopotamia.

Era of Grecian Civic Coins.

No chronological arrangement of the early Coinage of the Grecian States can at present be effected, but we are, nevertheless, induced to offer some hints for the consideration of the student on their probable era; viewing them in connection with the Coins of the ancient Kingdoms of Lydia and Persia. The subject has indeed seldom been more than imperfectly touched upon; and we conceive much valuable information connected with the chronology of Ancient Greece, the progress of the Art of Sculpture, and comparative wealth of the several States, might be obtained, if this inquiry were more fully pursued. We shall confine our remarks to a few Coins on which there remain grounds for reasonable conjecture as to their era; such are those of Egina, of Macedonia, and of Græcia Magna, but we have first to notice the Coinage of the Asiatic Countries.

Of Grecian Civic Coins.

Lydia.

The Lydians occupied a portion of Asia Minor, lying between the rivers Thermus and Menander, and are the nation recorded to have first stamped the metal used in commerce.* Upon reviewing the annals of the Lydian Kingdom, we shall find their History, at the commencement of the VIIIth century B. C., involved in obscurity, and intermixed with fable; at that period also the surrounding nations enjoyed independence. Upon examining the Coins ascribed to this Country, we will venture to say that the rudest among them cannot claim a higher antiquity than many of acknowledged Grecian workmanship, which we shall show in the sequel to have been struck about 600 B. C. Under Crœsus, 560 B. C., Lydia was incorporated with the Persian Empire, and as we must assign the year 700 B. C. as the earliest date for the practice of the Art of Coinage, we may consider the Lydian Coins as having been struck during this interval. It may be remembered that throughout the Poems of Homer, who flourished, according to Newton, 870 B. C., no passage is found from which we can infer the existence of stamped money, an omission which could scarcely have occurred if Coins had been in his days a medium of commerce.

Plate II. Fig. 10.

Persia.

The earliest of the Persian Coins in existence are the pieces denominated *Darics*, and commonly referred to Darius I., who ascended the throne 521 B. C. Upon a careful inspection of them, they will be found scarcely reconcilable with this date, being of extreme rudeness, whereas the Greeks of Asia Minor had, at the period in question, arrived at some proficiency in the Art. We may then conjecture that they were issued by order of Darius, a King of the Medes, who, upon a partial conquest of Lydia, 544 B. C., caused the money of that Country to be recoined for his own use.†

Fig. 12.

Græcia Propria.

For the epoch of the institution of Coinage in Græcia Propria, antiquaries usually adduce a passage in the Arundelian Marbles, relating that Phidon, a Prince of the Argives, established a Mint in the Island of Egina, 869 B. C. The Coins struck by him bear the marks of high antiquity, and as they are found to this day in great numbers, must have circulated extensively. The date assigned for these Coins will be perceived to be quite at variance with the generally received opinion that the Lydian Coinage is the most ancient. To free ourselves from this embarrassment we may observe, that a Prince, also bearing the name of Phidon, is reported to have flourished nearly three centuries later than the former, while the events recorded of their lives perfectly coincide; a circumstance so improbable, that Sir Isaac Newton without hesitation rejects the first name as fictitious, and fixes the date of Phidon at 584 B. C. We heartily concur in the opinion entertained by this great Philosopher, and we conceive that we shall not greatly err, if we place the earliest Coins of Egina as struck about 600 B. C. This conclusion will guide us in ascertaining the era of many Coins of the neighbouring Cities and Islands, as Thebes, Melos, &c.

Plate I. Fig. 1.

Macedonia.

Coins of great antiquity are found of many Cities of Macedon and Thrace, bordering on the coast of the Egean Sea. A knowledge of the circumstances which gave rise to a Coinage in this distant region, will acquaint us also with the period of their fabrication. The founda-

* Herodotus, i. 94.

† Newton, *Chronology, Babylonians and Medes.*

Numismatics.

tion of the Kingdom of Macedon is commonly ascribed by Chronologers to Caranaus, a relative of Phidon; a circumstance which will justify the supposition of a Mint having been established in that Country, in imitation of the one in Egina: this conjecture receives additional strength, if we might not say confirmation, from the weights used in both Countries being found to be the same.

Magna Græcia.

We have lastly to notice, the introduction of Coinage in Magna Græcia; an inquiry attended with more difficulty than the preceding, from the various nations who inhabited its coast, and the several periods of their migration. When treating of the Monarchic Coinage we shall have occasion to speak of the Coins of the early Princes of Syracuse, and as the subject will throw some light upon the Civic Coinage of the surrounding Country, the reader is referred to that section. It will answer our present purpose to observe, that but few Sicilian Coins appear to have been struck until 500 B. C.

Symbols on Grecian Coins.

Our next inquiry relates to the symbols of the Greek Coinage, and the causes which gave rise to a few of the most interesting. They will fall under three heads; *viz.*

I. Peculiar symbols adopted by the early Greek Cities.

II. The Deities and their attributes.

III. Symbols used in common by Greek Cities.

I. The greater number of the symbols included in the Ist division fell into disuse about 400 B. C., and after the lapse of about a century, the practice of introducing the heads of the Deities became general throughout Greece. The symbols included under the first class take their rise from local traditions and fabulous History, from the productions of the climate, and from distinguished characters and edifices of celebrity.

Symbols derived from local traditions and fabulous History.

Argos.—Under the reign of Gelanor, an early Prince of Argos, Danaus, an Egyptian, sought to deprive him of the Kingdom. A day was appointed for a public assembly to decide on their respective claims, on the eve of which a bull and a wolf, from the neighbouring mountains, fought under the walls of the City: the Argives assimilated the bull to Gelanor, and the wolf to Danaus; and the wolf proving victorious, the crown was awarded to the Egyptian Prince. In commemoration of this event, the Argives stamped on their Coins the device of the forepart of a wolf.

Byzantium.—It is related of Philip II. of Macedon, that meditating an attack on this City on a cloudy night, the moon suddenly shone forth, and discovered the approach of his army in sufficient time to enable the inhabitants to repulse him: the moon was ever after venerated as the preserver of Byzantium, and the event recorded by the symbol of a crescent. The Turks when they took possession of Constantinople in the XVth century, perceiving the type in many parts of the City, and ignorantly suspicious of lurking magic, thought to propitiate its unknown powers by the adoption of the symbol.*

Clazomene.—A tradition long prevailed that a winged boar appeared in the territory, and laid waste a great extent of country;† the inhabitants affixed, in consequence of this circumstance, a representation of the monster on their Coins.

Corinth.—According to fabulous History, the hero Bellerophon discovered the horse Pegasus, prior to his engaging, the Chimera by a fountain situated at the foot of the citadel of Corinth; hence that animal forms the symbol on their Coins.

Symbols on Grecian Coins.

Ephesus.—Philostratus relates that the Athenians, about to plant a colony on the coast of Asia Minor, were directed in their course to the spot on which this City was afterwards founded, by a swarm of bees, which preceded the vessel. Hence we have the origin of the symbol of a bee on Ephesian Coins.

Gortyna.—The symbol is that of Europa, recording the fable of Jupiter having conducted the daughter of the Phœnician King Agenor across the sea to the Island of Crete.

Heracleia.—There were not less than 100 Cities of this name, all of them founded in honour of Hercules. The symbols on the remaining Coins of a few of these Cities represent Hercules strangling the Nemæan Lion.

Stymphalus is memorable for being the spot at which Hercules destroyed the voracious birds *Stymphalides*, which fed upon human flesh. The hero is depicted in the act of discharging an arrow: the objects at which he aims are necessarily excluded.

Ilium.—The fate of ancient Troy is recorded on Coins of this City by the figure of Æneas bearing his father Anchises on his shoulders, and attended by the young Ascanius.

Symbols derived from the productions of the climate.

Lesbos, *Chios*, *Lampsacus*, and *Thasos* were famed for their excellent wines, and, in consequence, among the devices, heads of Bacchus and Silenus frequently appear; also ivy-leaves, grapes, amphoræ, a variety of drinking vessels, and the panther, an animal consecrated to Bacchus, may be seen.

Cyrene.—The symbol is the plant *silphium*, peculiar to the Country.

Metapontum and *Leontinum.*—The country surrounding these Cities was remarkable for its great fertility, so much so that, in Leontinum, corn was reported to grow wild. The symbol adopted by the former City was an ear of barley; by the latter, a lion's head, surrounded by grains of barley.

The devices on the Coins of many Cities lead to the origin of their names, these being derived from their productions, their fancied resemblance to some familiar object, &c. The most remarkable of this kind are the following.

Agrigentum, called by the Greeks *Agragas*, from κράγων, a crab. This animal is the type of the City, which was named after the river near which it was founded.

Clides, from Κλεὶς κλειδὸς, a key, the device adopted from the Island being assimilated in form to that object.

Cardia, from Καρδία, a heart, the symbol which may sometimes be seen on the Coins of that City.

Melos, from Μῆλον, a melon, a common symbol on the early Coins of Melos, either from the fruit abounding in the Island, or its fancied resemblance to it in form. The meaning of this word is doubtful, the common construction given being that of apple; but the fruit represented on the Coin does not perfectly resemble either that or the melon.

Rhodes, from Ῥόδον, a rose; it may, perhaps, also be translated the flowers of the pomegranate, the invariable type of the city.

Selinus, from Σέλινον, parsley. A leaf of this herb is the common type of the City, which received its name from a neighbouring stream, so called from the plant being found in large quantities on its banks.

Side, (Pamphylia,) from Σίδη, a pomegranate, the type of the City.

* *Historia Byzantina*, i. 7.

† Ælian. *De Naturâ Animalium*, xii. 38.

Numismatics.

Distinguished characters and edifices of celebrity.

Of the Cities which contend for the honour of giving birth to Homer, Smyrna and Chios have the fairest claim: on the Coins of the former the bust of the Poet forms a common device; on those of the latter he is represented at full length with his Poems in his hands. Sappho appears on Coins of her native City Mytilene in Lesbos, Lycurgus on Coins of Lacedæmon, and Ajax, the son of Oileus, forms the constant type on those of Opus, the Capital of part of Locris, and birth-place of the hero.

Crete was famed for its labyrinth, situated near the ancient Capital Cnossus, which constitutes the chief symbol on the Coins of the City. For the City of Rhodes, a radiated head of Apollo affords the type of the obverse, which there are some grounds for believing to have been copied from the celebrated Colossus. The splendid City of Ephesus was memorable through successive Ages for the Temple erected to Diana, that Goddess being worshipped there with peculiar honours; representations of the porch of this Temple are given on Coins struck during the Imperial Ages of Rome: they differ slightly from each other, as the edifice was frequently rebuilt. On Imperial Coins of the Island of Cnidus, the celebrated statue of Venus by Praxiteles is represented.

Symbols of Deities.

II. The IId division of symbols on Grecian Coins consists of the Deities and their attributes; these would naturally be suggested as the devices most appropriate upon the discontinuance of the indented square, and while the obverse sufficed to contain the type of the City. The chief Greek Deities appearing on the Civic Coins are the following.

Jupiter. The attributes *an Eagle* and *Thunderbolt.* On Coins of Epirus and Thessaly, the head of the Deity is crowned with oak-leaves: he had a celebrated Temple at Dodona, in the former Country, near which City was a grove of oaks, the leaves whereof were said to be endowed with the gift of prophecy.

Crete was the birth-place of Jupiter, his head is therefore common on Coins of the Cities in that Island. On Coins of Cyrene he is represented in the character of Jupiter Ammon, as on those of the Egyptian Princes.

Juno.—Peacock. The head of Juno is common to Grecian Coins; the Peacock may be seen on a few Coins of the Island of Samos, famed for its Temple erected to that Goddess, a representation of which is given on Coins struck in the Imperial Ages.

Plate I. Fig. 7.

Pallas.—Owl and *Pegasus.* The head appearing on the obverse of the silver Coins of Athens (the City consecrated to the Goddess) is invariably that of Pallas, and is conjectured to be copied from the celebrated statue of Phidias. On Coins of Ilium, the Trojan Pallas forms a common type.

Neptune.—Trident, Dolphin, and *Seahorse.* The City of Posidonia, (Ποσειδῶν, Neptune,) in the Country of Lucania, was founded in honour of that Deity; the coins are *incused,* (a character we have noticed as peculiar to the early Coins of Magna Græcia,) and bear for their type, without exception, a figure of the God.* Trœzene, a City of Argos, and the birth-place of the hero Theseus, acquired celebrity from its Temple erected to Neptune; a Trident was, in consequence, affixed on the Coins.

Apollo.—Tripod and *Lyre.* We have spoken of a head of Apollo on the Coins of Rhodes, supposed to be taken from the Colossus. The Cities of Chalcis in Eubœa, Mytilene, and Colophon, bear the type of a lyre on the reverses of their Coins; they were all famed for the worship of Apollo.

Symbols on Grecian Coins.

Venus.—A Dove. Cnidus, a City famed for its Temple to Venus, bears on its Coins a head of the Goddess. The symbol on the Coins of the Cities of Sicyon, and the Islands Seriphus and Siphnos is a dove, possibly bearing an allusion to the worship paid to Venus.

Diana.—A Hind. This animal is common on Coins of Ephesus, and on those of the City of Perga, in Pamphylia, memorable like the former for its Temple to Diana; a figure of the Goddess is given. Syracuse and Massilia had also Temples to Diana, and her effigy is of frequent occurrence on their Coins.

Ceres and *Proserpine.—Ears of Barley, Torches, &c.* The City of Eleusis, famed for its mysteries, offers on its Coins a representation of Ceres drawn in a car by serpents. Ears of barley are introduced on Coins of all the Cities of importance in the Island of Sicily, where the above Deities formed the chief objects of worship.

Hercules.—A Lion, Club, Bow and *Arrows.* We have already mentioned the Cities of Heracleia as presenting the device of Hercules strangling the Nemæan lion. Thebes was the birth-place of the hero, his head was in consequence sometimes introduced on the Coins of that City; he is represented also, on a few of them, strangling the serpents. Hercules was one of the chief Deities of the Tyrians, and his head forms a constant device on their Coins; lastly, on Coins of the Island of Thasos he appears shooting with his arrows: that Island was noted for a Temple to the Demigod.*

Bacchus.—Amphoræ, Grapes, Vine-leaves. Thebes gave birth to Bacchus, as well as to Hercules; hence when heads are given on the Coins (which does not frequently occur) they are of one or other of these Deities. *Amphoræ* are the most common devices on Bœotian and Theban Coins.

Pan.—A Goat. The animal may be seen on Coins of Macedonia, and on those of Arcadia; the God appears reclining on Mount Olympus.

Mercury.—An Antelope. This is the sole device on Coins of the City of Ænos, in Thrace.

Symbols used in common.

III. The IIId and last division includes a variety of symbols appearing in common on Coins which have not appropriated to themselves any peculiar device. The greater number of them are emblematical of warfare, (the symbols which would naturally suggest themselves to nations inured from infancy to the use of arms,) and may be referred to the Northern and less Civilized States of Greece.

Plate I. Fig. 4.

A Horse is the symbol common to Macedonia and the chief Cities of Thessaly, *viz.* Larissa, Pharsalus, and Tricca; the inhabitants of those regions acquired celebrity for their skill in the training and management of this animal, whereof the habitual use probably gave rise to the Fable of the Centaurs.

Fig. 3.

A Shield of an oval form is the type of Bœotia, appearing with scarcely an exception on Coins of the Cities Thebes, Platæa, Tanagra, and Thespis. On Coins of a few Macedonian Kings also we meet with a circular shield, variously ornamented. In addition to these devices we may notice frequent representations of *Warriors, Helmets, Clubs, Spears,* and other implements of battle. Lastly, we have the Cities situated on the sea-coast, and distinguished by their commerce, such as those of Asia

* A Coin of this City, delineated on an enlarged scale, may be seen in plate ii. fig. 4, illustrating the Essay on SCULPTURE.

* Herodotus, ii. 44.

Numismatics.

Minor, Phœnicia, and Græcia Magna. The symbols adopted by these consist chiefly of *Vessels, Prows, Rudders, Tridents;* a variety of fish, as the *Dolphin, Crab,* &c.; and in a few instances *Shells.*

Asiatic Coins of Alexander and his successors.

The conquests of Alexander and his Government in Asia, gave rise to the establishment of numerous Grecian Cities throughout Asia Minor, Syria, and Palestine. His General, Seleucus, founded no fewer than 134 Towns, of which Antiochia, Seleucia, Apamea, and Laodicea were the chief. The devices commonly affixed on the Coins of these places were the heads of the Deities and their attributes. The Coins of this division are, as we might conjecture, infinitely more numerous than the preceding, but from the sameness of the devices they afford little interest.

Legends on Grecian Coins.

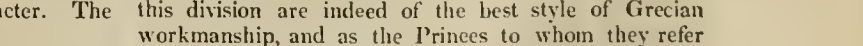
We shall conclude the subject of Civic Coins by some account of the characters constituting the Legend. The inscriptions of the greatest simplicity were those of the early Republics; for as Kingdoms became powerful, depraved by luxury, and verging to decay, so their Legends became diffuse, being filled with expressions of adulation calculated to nurse the ambition and flatter the vanity of Princes. While Coinage was limited to a few Grecian States, and each appropriated to itself a device, it will be obvious that it was superfluous to insert the name of the City, and hence the greater number are destitute of characters, if we omit the occasional insertion of the initial letters in the compartments formed on the reverses. But when Coining became general throughout Greece, and symbols of the Deities were substituted and promiscuously employed, it was then found requisite to inscribe the names either at length or in an abridged form.*

On Coins of Abydos, in Mysia, the single initial letter first occurs; we have afterwards AB, also ABY, and sometimes the entire name, ABYΔΙΩΝ, in the genitive case, money being understood. On Athenian Coins AΘE is commonly inscribed on the early Coins, and afterwards AΘHNAIΩN. Thebes is expressed by ΘE, Syracuse by ΣYPA, and so on. It may be remarked also that on the earliest Coins, particularly those of Græcia Magna, the characters are frequently placed in retrograde order.

Plate 1. Fig. 7. Fig. 3. Fig. 2.

Monograms

In order that these characters should occupy less room on the Coin, and not interfere with the device, *monograms* were introduced; these are figures comprising a portion of the name, in which the characters are so interlaced that a limb of one applies to many. By this ingenious method an entire name might be brought within a space of little more extent than that which was previously occupied by an individual character. The following will serve as illustrations:



II. Grecian Monarchic Coins.

The Civic Coins about the Age of Alexander the Great have been stated to bear for their devices, heads of the chief Deities, and the attributes peculiar to them. The Coins which now demand attention differ from the Civic in presenting the portraits of Princes (there are, however, many exceptions) in lieu of the heads of Deities; the reverses mainly consist of figures of Deities who formed the chief object of worship in the particular City in which the Coin was struck, and were, probably, copied from statues erected to their honour.

The period of History which these Coins serve to elucidate is that which has received the denomination of the Grecian Empire, commencing with Alexander the Great, and closing with the extinction of the dynasty of the Lagidæ, in the Augustan Age. Independently of the Kingdoms included in this Empire, a few Coins exist of the Kings of Epirus, also a series of the Syracusan Princes.

Grecian Monarchic Coins.

Divisions of Monarchic Coins.

The Coins of the Grecian Empire may be divided into those of the four Kingdoms established upon the final division of Alexander's dominions, *viz.* the Kingdoms of Macedon, Thrace and the Western parts of Asia Minor, Syria, and Egypt; also the portions of these which were subsequently formed into distinct dynasties. Under this second division we have the Countries of Armenia, (divided into the Greater and the Lesser,) Parthia, Bactriana, Judæa, Commagene, and Osroene, or Edessa, in Mesopotamia.

Macedon.—The Coins of this Kingdom claim our first attention; for omitting those which bear the head of Gelo, first King of Syracuse, (referred by some antiquaries to the reign of that Prince,) they precede by upwards of a century the Coins of any other race of Grecian Princes. As this series is of considerable extent, and slightly varied in its character according to the periods in which the Coins were struck, we may divide it into three classes: the first of these commences 500 B. C. with Alexander I. and closes with Amyntas, the father of Philip II.; under the second division will fall the Coins of Philip II. and Alexander the Great; and the third includes those of the remaining Princes, until the final subjection of the Country to the Romans.

I. This division is chiefly interesting from including many pieces bearing the rude indentations peculiar to the early Coinage. As these have already been described in treating of the Civic Coins, further detail is needless. The Coins of Alexander I. are in silver, and of great rarity, as are also those of his immediate successors; the most common type on the early, and indeed late Coins of the series is a Horse with or without a rider, and upon the introduction of symbols on both sides of the Coins, a head of the young Hercules clothed in the lion's skin. Hercules was a Deity highly honoured in Macedonia, as the inhabitants deduced their descent from him.

Plate 1. Fig. 4.

Coins of Philip II. and Alexander the Great.

II. We have just observed that the Coins of the first class were indicative of the infancy of the Art among the Greeks, and it is remarkable that it attained to considerable excellence in little more than a century from the discontinuance of the indented square. Many Coins of this division are indeed of the best style of Grecian workmanship, and as the Princes to whom they refer are among the most distinguished in History, they merit some attention. Numerous as are these Coins, it is remarkable that they offer but little variety in their devices, it is also doubtful if any Coins of Philip were struck in copper; the reverses of those in gold and silver bear symbols commemorative of his victories in the Olympic Games; the head appearing on his silver Coins is invariably that of Jupiter, a Deity whose worship was very ancient in Macedon. The gold Coins of Alexander the Great bear a head of Pallas, (a favourite Deity of that Prince,) also figures of Victory, in allusion to his extensive conquests. On the silver Coins a figure of Jupiter is represented, a symbol which afterwards became common to Coins of the Grecian Empire. The God appears seated, bearing in his right hand an eagle or a figure of Victory, and in his left a sceptre; the figure was probably

Fig. 9.

Fig. 8.

* For some of the forms in which the names appear on ancient Coins, see ABBREVIATIONS, in our *Miscellaneous Division.*

Numismatics.

copied from the renowned Statue by Phidias, at Olympia. On the obverse of the Coins with this device, we have a head of the young Hercules clothed in the lion's skin; these symbols were affixed to Alexander's Coins in consequence of his tracing his descent from the last-mentioned Deity, and from his earnest desire to be regarded as the son of Jupiter. The bronze Coins of Alexander are unimportant, as they are of inferior execution, and the symbol consists but of a repetition of the devices just named. It may be remarked that none of the Coins struck during the life-time of that Prince are known to preserve his portrait, although the practice of introducing the heads of Princes was not uncommon in his Age. Visconti has with much pains endeavoured to prove that his features are preserved on a few Coins under the character of the young Hercules, but the result of his observations is unsatisfactory.*

III. The Coins of Philip V. abound in Cabinets; they are greatly diversified in their symbols, and many in silver are of very good workmanship.

Copper Coins of the Greek Kings.

The copper Coins of the Greek Empire are seldom deserving of much attention; inferior in their execution to those in silver, they offer devices but slightly differing from the Civic Coins, *viz.* the heads of Deities and their attributes; the greater number of the Coins after Alexander the Great are of this kind, and consequently of little esteem.

Thrace and part of Asia Minor formerly constituted the chief possessions of Lysimachus, in the division of Alexander's dominions; the Eastern portion, however, of the latter Country fell to the lot of Seleucus. Soon after the death of Lysimachus, Thrace was overrun by the Gauls, and Asia Minor was formed into several independent Kingdoms.

Thrace.—The silver Coins of Lysimachus are very numerous, and bear the portrait of the King; the horn behind the ear is symbolical of power and strength, and was assumed by a few of the Generals of Alexander, the supposed son of Jupiter Ammon. The gold Coins of this Prince resemble the silver; the copper are unimportant.

At the fall of the Greek Empire, the Gallic Chiefs, who held possession of the Country, struck Coins; they are all of copper, indifferently executed; and in lieu of the ordinary symbols on the reverses, they bear the portraits of the Roman Emperors in token of allegiance. This series extends to the reign of Caligula.

Asia Minor.—*Caria* is the most ancient Kingdom in this territory of which a series of Monarchic Coins is preserved; on the obverse are heads of Apollo, resembling those on the Coins of Rhodes; the type of the reverse is a figure of Jupiter *Labradeus*, (so named from his bearing an hatchet:†) Jupiter was the chief Deity of the Carians, and had a splendid Temple at Halicarnassus, the ancient Capital and Royal seat. This series extends to the Age of Alexander.

Mysia, or *Pergamus.*—Philetærus, the Prince who founded this dynasty, appears, from the Coins, to have had his name used in common by the race, a practice by no means unfrequent in the East: the portraits on the numerous Coins usually ascribed to him, exhibit too great a diversity of character to authorize a supposition that they were intended for the same individual. On the reverse, a figure of Pallas is represented, seated, and holding in her right hand a laurel crown; this type alludes to the solemn Games instituted in honour of that Goddess, at Pergamus, by Philetærus, and observed by the succeeding Princes. The copper Coins of this series are few in number, and little worthy of notice.

Grecian Monarchic Coins.

Bithynia.—The silver Coins of this race of Princes represent their portraits boldly executed, and on their reverses a figure of Jupiter. He had a Temple at Nicæa, the Capital, and is represented with his right hand extended, bearing a laurel crown, the reward of the victors in the Games instituted in his honour.

Cappadocia.—A very complete series of the Coins of the late Princes of this Country is preserved, inscribed with the years of their reigns, as indeed are many Coins of the Bithynian Kings. Pallas bearing a figure of Victory is the type of the reverse.

Pontus.—But a few Coins remain of the Princes of this Country; indeed, until Mithridates the Great, its History is little known. The series is not characterised by any peculiar device; the Coins of Mithridates are numerous, and possess great beauty; the symbol is commonly a Hind, encircled by an ivy wreath; and occasionally Pegasus, a type of the City Amisus, is substituted.

Bosphorus.—In connection with Pontus we may notice this remote region, governed from an early period by Kings whose names alone remain. The utility of ancient Coins to the Historian is in few instances more remarkably shown than in the Coins of this Kingdom, as those of a race of Princes scarcely mentioned in History, are preserved entire for upwards of three centuries; and from the dates being given with each, we are enabled to ascertain the precise year of the accession of many of them. Several of these Coins are composed of the mixed metals denominated *electrum* and *potin*; the former compounded of gold and silver, and the latter, silver debased with copper. The execution of these Coins is very indifferent; indeed those of the last five reigns scarcely preserve the form of the human countenance: the series extends from Augustus down to Constantine the Great, and on the reverses the heads of the Roman Emperors, to whom they acknowledged allegiance, commonly appear.

Egypt.—If we omit the Coins of the Seleucidæ, those of the descendants of Alexander's General, Ptolemy, who fixed themselves at Alexandria, form the most beautiful monarchic series extant. They acquire additional interest from preserving portraits of the Queens; many are unrivalled in execution, and the gold Coins, both for size and number, exceed those of any other Kingdom. The devices are but of two kinds, an Eagle on a thunderbolt and a Cornucopia; the introduction of the first symbol is conceived to have originated either from Ptolemy I. deducing his descent from Jupiter, or from his life having been preserved by an eagle, when exposed in his infancy in the woods: the cornucopia, on the Coins of the Queens, was probably emblematical of their deification, the symbol being given to the propitious Deities. The copper Coins of the Egyptian Kings are destitute of portraits, the head of Jupiter Ammon forming the sole type of the obverse: on the silver Coins the year of the Prince's reign is frequently inscribed, prefixed by a character resembling the English letter L. In this series are a few gold Coins highly interesting from the portraits they transmit, and which give them the character of Medals; the pieces we

Plate I Fig. 6.

* *Iconographie Grecque, Rois de Macédoine.*
† Plutarch, *Quæst. Græcæ.*

Numismatics.

allude to represent on one of the sides the portraits of Ptolemy I. and Berenice, and on the other those of the IId Ptolemy (Philadelphus) and Arsinoe.

Syria.—A few gold Coins exist of the early Kings of Syria, but all are of extreme rarity; the series in silver possesses great beauty, and is preserved entire of nearly all the Kings, (twenty-six in number:) from the diversity of character these exhibit, and from the resemblances which may be traced in branches of the same family, there is every reason to believe that the likenesses are correct. On the reverses of the above Coins we meet with figures of the Deities who formed the chief objects of worship: the first in importance is Apollo; he is represented on the *Cortina*, a seat of a conical form, placed over the spot whence the gale of inspiration was conceived to arise: this device appears on the Coins of Seleucus I., the reputed son of the God. With Antiochus IV. we have the type of Jupiter, closely resembling the figure on Coins of Alexander the Great; the adoption of this symbol arose from a celebrated Temple, erected to Jupiter in Antioch, having been embellished by this Prince, who also caused a Statue of the God, copied from that at Olympia, to be placed therein. On Coins of succeeding Princes, Pallas and other Deities appear.

Armenia.—The few Coins which remain of this extensive region are indicative of the rude state of the Art; and the Princes to whom they refer are scarcely known in History.

Parthia.—The Coins of the Parthian Kings differ in their general appearance from all of the preceding, yet they possess little variety among themselves; the series extends throughout nearly five centuries, and from the changes they underwent during this period, we may consider them as consisting of three kinds. I. This division includes the reigns of twelve Princes, and extends to about fifty years before the Christian Era; the Coins are small in size, and have for the type of the reverse the King seated, holding in his hand a bow. The portraits, which manifest a progressive improvement in the execution of the Coins, are rendered interesting from the pains bestowed in the delineation of costume. The figure on the reverse is encompassed by a Legend of some length, as in addition to the name Arsaces, common to the race, a surname is occasionally introduced, serving to distinguish the Princes, the epithet ΦΙΛΕΛΛΗΝ, or friend to the Greeks, and the pompous title "King of Kings." II. The greater number of these are of a large size and of superior workmanship; some variety is also given to the device of the reverse, in which a female appears presenting a crown to the Monarch. III. The third class includes the Coins of the last few reigns, which are only remarkable for their extreme barbarism. This series is in silver, with the exception of those forming the last division, where copper is mixed in such large proportion with the silver, as to constitute the metal called by the French *potin;* dates appear on late Coins of this dynasty, (commencing from the era of the Seleucidæ 312 B. C.,) and they furnish the only means of appropriating with certainty the Coins of many of the Kings.

Plate I. Fig 11.

Bactriana.—The discovery of Coins of a few Princes who reigned over this distant Country, the most remote of Alexander's conquests, has enabled antiquaries to ascertain, in some degree, the order of succession of the Kings; and little as we are acquainted with their History, there is much reason to believe that the Kingdom at one period had attained great power. The Coins are unquestionably the work of Greek artists.

Grecian Monarchic Coins.

Judæa.—The earliest known Coins of this Country were struck during the dominion of the Maccabees, and the greater number may be referred to Simon Maccabeus, his name being inscribed thereon in Samaritan characters. The symbols of most frequent occurrence are Vine-leaves and Palm-branches, and to the Coins of Princes of a later date, Cornucopiæ. Coins remain of the three Herods and two Agrippas; they are of copper, and bear dates like the Egyptian.

Commagene.—These Coins are of copper, and consist, with scarcely an exception, of those of Antiochus IV., his Queen, and their sons. The sign Capricornus is a common type, being that under which the Emperor Augustus was born; this symbol, as will be hereafter shown, is common to the Coins of that Emperor, and was probably introduced on this occasion from Antiochus IV. having acquired the territory through his influence.

Edessa.—The Coins of the obscure race of Princes who reigned over a part of Mesopotamia, of which Edessa was the Capital, are, like those of the preceding Countries, in copper, and of rude workmanship. The order in the succession of the Princes can be ascertained only from the heads of the Roman Emperors occupying their reverses, the name Abgarus being common to the Kings, and, with but one exception, the only one introduced in the Legend.

Syracuse and *Epirus.*—The Coins of these Kingdoms, which we have delayed noticing hitherto, as they do not fall under the Greek Empire, are here taken in connection, because many of the latter Country, to all appearance, are the fabrication of Sicilian artists. The Coins of the Syracusan Kings differ but little in their general character from those of the other Grecian States; they are greatly diversified, and for beauty of execution rival any extant: the symbol of most frequent occurrence is that of a Victory guiding a chariot, a device commemorative of the solemn Games instituted in honour of Ceres and Proserpine. Much contrariety of opinion prevails respecting the era of the supposed Coins of Gelo, the first King of Syracuse: (elected 494 B. C.) the reader will remember that we stated the invention of the Art of Coinage to have taken place in Sicily but a short time prior to the above date; presuming, however, that it may have originated 600 B. C., little improvement could be looked for in the course of a century, whereas many Coins of the Prince above-named are of the finest workmanship. It is also highly improbable that a period of two centuries should elapse without any Coins being preserved of the numerous individuals who held the reins of power. Another circumstance will seem greatly to favour the supposition that they were struck in the IIId century B. C., (in which case they may be referred to the reign of Hiero II.) We allude to the portraits appearing in the obverses. It is very doubtful if portraits were introduced on Coins much before the Age of Alexander, at least out of Macedon, and had they been impressed on Syracusan Coins so early as Gelo, there would have remained, in all probability, heads of Agathocles, Phintias, and especially of Pyrrhus, who passed a considerable time in the Island; but none such have been found, the portraits commencing not earlier than Hiero II. The early wealth and prosperity of Sicily is one of the arguments advanced in favour of the older

Numismatics.

date, but it should be remembered that although Coins, finely wrought, have rarely appeared in any but wealthy Countries, nevertheless, instances are by no means uncommon of Countries proverbial for their early riches, which did not practise the Art of Coinage until the decline of their power. A few silver Coins have been referred to Dionysius, but their authenticity is much doubted; they are inscribed with Phœnician characters, and consequently were struck by the Carthaginians. The Sicilian Monarchic Coins are of various metals and sizes, and of Hiero II. there are a few fine Medallions: this series of Coins closes with the Siege of Syracuse by Marcellus, 212 B. C. The Coins of Epirus commence with Alexander I., a Prince contemporary with Alexander the Great, but with whose History we are little acquainted; the gold Coins which exist of this Monarch are conceived to have been struck in Magna Græcia, whither he went to aid the Tarentines in their wars with Rome. The Coins of Pyrrhus exist in various metals, and offer many pleasing devices.

The remainder of the Monarchic Coins comprise those of a few Princes who reigned in Galatia, Cilicia, Paphlagonia, Heraclea in Pontus, and in Illyria and the adjoining territory.

Value of Grecian Coins.

Little, if any, information can be obtained, at the present day, respecting the *actual* value of money among the Ancients; we propose, therefore, to treat only of the relative value of the pieces when in circulation, by placing upon the chief Coin that value, which it may be conjectured to have borne when struck. This estimate may be effected with considerable accuracy, from the passages remaining in ancient writers who have touched upon the subject, but more especially by the aid of existing Coins. A knowledge of this subject is in a degree requisite in order to understand the terms frequently made use of in Historical works; it must create additional interest in surveying the Coins, which will be augmented as we find a resemblance existing between the weight now employed and such as were then in use.

Silver was used at an early period by the Greeks, being found to be the metal best adapted for the purposes of Coining. The Coins of this metal being the most abundant, their value can be more accurately defined than that of others; they are, therefore, first entitled to consideration.

Silver.

In a former paragraph we remarked that weight was the grand standard of Grecian Coinage, adopted prior to the invention of stamped money, and ever afterwards retained; hence the terms in use to designate the weights were likewise applicable to the Coins themselves. Thus, *Drachma* was applied to a piece of metal weighing the eighth part of an ounce, as at the present day; it retained this appellation after being impressed with a device, and it became the leading denomination of Grecian Coins.

Computation of large sums among the Greeks.

All large sums among the Greeks were referred to so many *Minæ* and *Talents*. The *Mina* is supposed to have been the pound weight of the Country to which it belonged, and was equivalent to the Roman *Libra* or *Pondus*, (hence the term pound,) and to our pound Troy. Eight *Drachmæ* were assigned to the *Uncia*, (ounce,) and twelve ounces, or 96 *Drachmæ*, to the pound; but as it has been customary in all Ages to make an addition to any large sum, the Grecians caused 100 *Drachmæ* to be given to the *Mina*; 60 *Minæ*, or 6000 *Drachmæ*, thereby constituting the *Talent*. The ideal value commonly assigned to the *Drachma* is 9*d*., thus allowing £225 for the *Talent*;* the *Mina*, or Pound, varied considerably in Countries remote from each other; but as it invariably contained 100 *Drachmæ*, the diversity of weight prevailed among these last. The *Talent*, or standard in general use throughout Greece, is that by which many of the early Coins of Asia Minor were regulated, and being afterwards employed at Athens, was designated the *Attic Talent*. Next in importance to this was the *Eginetan Talent*, so called from its originating in the Island Egina; it was employed in Macedon also, and a few Cities of Græcia Propria. The standard which regulated the Sicilian Coinage differed from both the preceding, and has not been satisfactorily explained: the Attic *Drachma* weighed 66 grains, that of Egina upwards of 100 grains.

Value of Grecian Coins.

There was also a second *Talent* occasionally used at Athens, denominated the *Great Attic Talent*, from containing 80 *Minæ*.

The *Drachma* in size is intermediate between our Sixpence and Shilling; and those of the Greek Cities and Kings are common. The Coins of the Cappadocian Princes, and many of those of the Syrian and Parthian dynasties, are of this kind. Plate I. Fig. 11

Didrachmæ are found which may be referred to the Attic standard; those, however, of the Island of Egina are abundant, and some are occasionally met with of those Countries which are mentioned as having adopted the standard of that Island. Fig. 1.

The *Tetradrachma* is the largest Grecian silver Coin, and is equivalent, as the name implies, to four *Drachmæ*. Those of many Cities are common, of the Kings abundant. The large silver Coins of the Kingdoms of Asia Minor, Egypt, and Syria, are *Tetradrachmæ*. Neither these Coins nor the preceding agree in their sizes, as they are regulated solely by weight; frequently the diameter of the Coin is inconsiderable, in which case the apparent deficiency is compensated by a proportionate increase of thickness. Fig. 7. 8.

The *Tridrachma* of the Attic standard, nearly equal to the *Didrachma* of Egina, is a division sometimes spoken of, but as no pieces have yet reached us which we can feel authorized in pronouncing to be of this kind, it is therefore doubtful if there were any struck.

The leading denomination in the silver Coinage, inferior in value to the *Drachma*, is the *Obolus*, formin ga sixth part; it is a very small Coin, weighing but eleven grains, and is not of frequent occurrence.

The *Triobolus*, or *Hemi-drachma*, as it is usually termed, is much more common than the preceding Coin; in weight and value it is precisely half of the *Drachma*.

The terms *Diobolus* and *Tetrobolus* are applied to small silver Coins, as their weights with reference to the *Obolus* would seem to authorize the appellations.

The *Obolus* contains eight copper Coins denominated *Chalci*, and its half and quarter being struck in silver were respectively designated *Tetrachalcos* and *Dichalcos*.

The *Dichalcos* is the smallest division of silver money which has been preserved; it scarcely exceeds in its dimensions one quarter of our silver penny, and is about five grains and a half in weight.

Such are the parts of the *Drachma* deserving notice; the reader is, however, cautioned against placing any

* See the Table.

Numismatics.

great reliance on the application of the above terms to the small silver Coins, should they be found even of the required weight; the Athenian silver Coinage abounds of all sizes, and the great assistance afforded by them in ascertaining the constituent parts of the *Drachma* will in some measure compensate for the indifference of their execution and the poverty of their devices.

Gold.

We now proceed to the gold Coinage of Greece, which is less intricate than the silver, the parts being less numerous and admitting of fewer variations in size.

Plate I. Fig. 9.

The leading denomination in this Coinage is the *Didrachma*, called Χρυσοῦς, from the metal, and *Philippus* from having been first coined by Philip of Macedon. Silver, we are informed, at first, bore to gold the proportion of 12 to 1, and afterwards that of 10 to 1, at which standard it continued; hence the *Didrachma* weighing double the *Drachma*, or 132 grains, was valued at twenty silver *Drachmæ*, or 15*s.* sterling.

In the Coinage of the Kings, exclusive of Macedon, the gold Coins of the Syrian Princes, and the few which remain of the Kings of Asia Minor, are *Didrachmæ*.

Next in size to the *Didrachma* is the *Tetradrachma*, according in weight with the chief silver Coin of that name. These are extremely scarce; a few exist of Alexander the Great.

Fig. 6.

The gold Coins of the Egyptian Kings are equivalent to eight *Drachmæ*, or four Χρυσοῖ; they are, however, adapted to a standard with which we are unacquainted, and form no compound of the Attic *Drachma*; they exist of two or three sizes, the smaller ones by their weights being evidently relative parts of the chief Coin.

Octodrachmæ of gold are to be met with of two or three Kings, but they are generally regarded as forgeries.

Fig. 10.

Drachmæ in gold exist of a few Cities, and also of the Kings Hiero II. of Syracuse and Pyrrhus; the *Hemidrachmæ* also are not uncommon; they are found in the Kingdom of Macedon, both of Philip and Alexander the Great.

Independently of this enumeration, a variety of gold Coins, yet smaller in size, abound, which are not in conformity to the Attic standard; the remarks on the small silver Coinage are equally applicable in this place.

Copper.

The copper Coins of Græcia Propria, during several centuries, do not much exceed the silver *Drachmæ* in size, and are probably the *Chalci* we have had occasion to allude to. The variety of accounts handed down by Historians, some of whom assign four *Chalci* to the *Obolus*, others six, and a few even ten, has contributed to involve the subject of copper Coinage in great obscurity; and so much disparity prevails among the Coins themselves, as to render the prospect of a satisfactory explanation of them, at this distant period, almost hopeless. This disagreement among Historians may be in some measure ascribed to the proportionate value of copper to silver varying at different periods: eight *Chalci* seem to have been most commonly allotted to the *Obolus*, a number which admitted most readily of divisibility, and hence the quarter of the *Obolus* received the appellation of *Dichalcus*.

Upon the decline of the Greek Empire, about a century after the Age of Alexander, smaller copper Coins were found necessary; hence the *Chalcus* was subdivided into a variety of parts, receiving the general denomination of *Lepta*, the Coin which, according to St. Mark, was cast by the Widow into the Treasury. (xl. 42.) Copper Coins are found of all the Cities of note, and many of them considerably under the size of the *Chalcus*; those of Athens are reducible into four sizes, but any attempt at classing the Coins of the other States in this metal would be fruitless. When the *Chalcus* consisted of eight *Lepta* its parts received appellations indicative of their relative value to that Coin, and thus we have the *Di-lepton* and *Tetra-lepton*, or *Hemi-chalcus*.

Value of Grecian Coins.

As the dynasties constituting the Greek Empire fell by right of conquest under the power of Rome, the Coins of this last nation became the model upon which those of Greece were formed; such was also the diminution in the sizes of the silver Coins that the *Obolus* was struck in brass, and the *Chalci* substituted in their room. There are many brass Coins of the Island of Chios on which the value is directly specified, as *Obolus*, *Dichalcus*, &c.

Late Coins of the Grecian Empire.

The annexed Table exhibits the proportionate value of the Grecian Coins, reduced to the Attic standard, and will serve as an illustration of the foregoing passages; the sizes of the chief Coins may be found by reference to the plates.

Mode of Computation.

			£.	s.	d.
		Drachma	0	0	9
100		Mina	3	15	0
6000	60	Talent	225	0	0

Gold Coins.

	Hemi-drachma (5 *Silver Drachmæ*) Τετρα-χρυσοῦς.	0	3	9
2	Drachma (10 *Silver Drachmæ*) Ἡμι-χρυσοῦς.	0	7	6
4 2	Di-drachma (20 *Silver Drachmæ*) Χρυσοῦς. *Stater Aureus.*	0	15	0
8 4 2	Tetra-drachma Δι-χρυσοῦς.	1	10	0

Silver Coins, &c.

Chalcus.									Weight. grs.	Value. s.	d.
2	Di-chalcus								2½	0	0½ & ¼
4	2	Hemi-obolus							5½	0	0½
8	4	2	Obolus						11	0	1½
16	8	4	2	Di-obolus					22	0	3
24	12	6	3	1½	Hemi-drachma *Tri-obolus.*				33	0	4½
32	16	8	4	2	1½	Tetrobolus			44	0	6
48	24	12	6	3	2	1½	Drachma		66	0	9
96	48	24	12	6	4	3	2	Di-drachma	132	1	6
192	96	48	24	12	8	6	4	2 Tetra-drachma *Stater Argenteus.*	266	3	0

Metals employed in Grecian Coinage.

It will be found that Gold was not introduced into Græcia Propria or its Colonies, as a medium of com-

Numismatics.

merce, till the most flourishing periods of their History. This observation, which will not apply to either Roman or Modern Coinage, is worthy of notice in this place, inasmuch as the institution of a Coinage in gold in any Grecian City is indicative of its having attained to great opulence. In Asia Minor gold abounded at an early period; it is therefore no wonder that this metal was there resorted to while the Art was in its infancy, which Art, it will be remembered, originated in Lydia, at Cyzicus, Phocæa, Ephesus, Clazomene, and other wealthy Cities. In Magna Græcia and Macedon, gold came into use about the Age of Philip II.; the chief Cities in which it was issued in the former Country were, in Sicily, Syracuse, Panormus, and Agrigentum, in Italy, Tarentum, Metapontum, and the towns of the Bruttii. In the Greek Empire, Macedon, we may observe, rose into power with Philip II., and declined after the Age of Alexander the Great, after which period little gold was struck, copper Coins chiefly abounding. The dynasty of the Lagidæ, whose Country enjoyed a long season of prosperity, have left a fine series of gold Coins. Syria was most powerful under the early Kings, and these are the only Princes of whom Coins in this metal have been found: the gold struck in Asia Minor was coined by the Generals of Alexander and a few powerful Princes, as Antigonus, Demetrius, Nicomedes, and Mithridates the Great. A careful examination of Grecian Coins will convince us that independently of the great body of Historical matter which they comprise, and the numerous passages in ancient writers they elucidate in the most satisfactory manner, they also hold no mean rank among the remains of ancient Art. Numismatical writers have not omitted to notice this circumstance, and the high encomiums which they have bestowed upon them, may have led to an opinion that antiquaries, in their enthusiasm, may have imagined to themselves beauties which in reality do not exist. The difficulty of obtaining access to Cabinets, and the inaccurate representations which have from time to time appeared in printed Works on the subject, might indeed warrant this supposition, but an attentive inspection of the originals will lead the student to confess that, for boldness of relief, freedom and spirit of execution, and correctness of design, they have rarely been surpassed. We must not expect to meet with Coins finished with the beauty and delicacy of ancient Gems, neither shall we find that great degree of neatness characteristic of modern current Coin. To have rendered the margins even, and of a perfect form, could have been effected by a very simple process, but all attempts of the kind either escaped the notice of the Ancients, or were considered as objects of little concern.

Workmanship of Grecian Coins.

We have little hesitation in asserting that Grecian Coins afford a just criterion of the state of the Arts at the periods in which they were struck; there are, however, some exceptions. We should naturally look to Athens for the most beautiful specimens of Coinage, since that State brought the Art of Sculpture to an unparalleled degree of excellence; it will, therefore, excite surprise when we state, that the Athenian Coins are invariably of indifferent execution. In Athens, Coins, it is evident, were regarded merely as objects of commerce; encouragement was held forth by the State for works of magnitude, Temples, and other public edifices, but the art of die-engraving was little esteemed. On the contrary, the Coinage of the Greek Kings, especially the Generals of Alexander, of Magna Græcia, and of Asia Minor, is remarkable for beauty.

Early Coins of Rome.

Sect. II.—Roman Coins.

Character of Roman Coinage.

From numerous circumstances connected with situation and early History, the Coins of Rome differ in many points from those of Greece; among the distinctions, we may notice the exceedingly large size of the copper Coins struck in the early period of the Commonwealth, the little variety which prevailed in the devices anterior to the reign of Augustus, the greater superiority in the execution of the copper Coins in the Imperial Ages, and lastly, the accuracy with which the sizes were adjusted. It will not be difficult to trace the causes which gave rise to these distinctions. The metals gold and silver were unknown to the Romans in the early period of their History; indeed, mines of silver are to this day rarely to be met with in Italy, while the commerce carried on with the adjoining States was too trifling to admit of an importation of that metal: copper, on the contrary, abounded; it became therefore requisite to coin it of all sizes. It will be obvious that had Coins been struck in Greece of copper equivalent in value to the silver *Drachma*, they would have been of several inches in diameter, and of this kind are the Roman pieces. We have noticed the manner in which the early Grecian Coins were struck; a contrary practice was adopted in Rome, *viz.* that of casting them, as indeed the former method could not have been put in practice with pieces of very large dimensions: when the wealth of Rome was afterwards augmented by foreign conquests, and the copper Coins were reduced in size, by the introduction of silver into the Mint, the practice of casting was discontinued.

Nature of the early symbols.

The symbols first affixed on the Roman Coins were, as we shall shortly see, similar in their nature to those which appeared on the Coins of the surrounding Nations, among whom were many powerful Cities, each of which appropriated to itself some peculiar devices. In the lapse of time these Cities became subject to Rome, and adopted her emblems, but these are little diversified while her conquests were limited to Italy. When speaking of the superiority in workmanship of the copper Coins of the Empire, we should observe that they were for the most part formed of the compound metal brass, which, it would seem, was at that period held in great esteem: these Coins surpass in execution those of copper, as from their larger size they afforded the engraver greater scope for exertion of his skill.

This difference between the Roman and Grecian Coins will oblige us to pursue a different course in our treatment of them. It will be requisite to consider the value of the early Consular Coins apart from the Imperial, and also to specify the value in the outset, since not only are the devices few in number, but a practice long prevailed of designating the pieces of different value by these devices, notwithstanding such pieces were regulated by weight, and impressed with characters denoting their value.

I. Roman Consular Coins.

There are sufficient grounds for believing the Romans to have borrowed the Art of Coinage from their neighbours the Etruscans, Umbrians, and other adjoining States; the Etruscans were powerful and opulent long before the building of Rome; sufficient monuments exist to this day which prove them to have been a highly polished Nation, and to them probably all the earliest

Numismatics.

Italian Coins may be referred. Herodotus relates* that a Colony of Lydians planted themselves at an early period in Umbria, whence it has been inferred that the Romans, through the medium of the Umbrians, were, as well as the Greeks, indebted to Lydia for the invention of the Art. We are not, however, warranted in this conjecture, as it seems very doubtful if the Art was known in Asia Minor until long after the period of the above-named migration. The Cities in that part of Italy of which numerous Coins are extant are Volaterra, in Etruria; Tuder, in Umbria; and Hatria, or Hadria, the City which subsequently gave name to the sea on the coast of which it was founded: many Coins likewise exist of the Cities Populonia and Teate, situated in the Countries above named, but they are of later date. The symbols appearing on these Coins, executed in the most wretched style of Art, are very various, and as they seem in no way connected with the Cities themselves, any detailed account of them will be superfluous: the common devices are Cattle, (hence the origin of the term *pecunia*, from *pecus*,) a variety of Animals, Fish, Anchors, Wheels, Bones, &c. The names of the Cities are generally given in characters peculiar to the Country, and slightly resembling the Phœnician; there are also certain marks indicative of their value. The chief pieces in circulation were rude masses of copper, most frequently of a circular form, of several inches in diameter, and weighing about a pound; the pound was divided into twelve ounces, and each of the smaller denominations contained a certain number of ounces, the precise number being designated by points or dots.

Institution of Coinage at Rome.

Coinage, as we are informed by Pliny,† was instituted at Rome under the reign of Servius Tullius, 550 B. C., or according to Newton, 467 B. C. This Coinage consisted of the *As Libralis*, (from *as* or *æs*, brass,) or *As* of a pound weight, and, after a short period, of its parts, each of them receiving a name expressive of its value with reference to the chief Coin. They will arrange themselves as follows:

As Libralis .... containing	12 oz.	its character L or I.
Semis, half of the *As*.....	6.....	S.
Triens, one-third ditto.....	4.....	••••
Quadrans, one-quarter ditto	3.....	•••
Sextans, one-sixth ditto....	2.....	••
Uncia, one-twelfth ditto...	1.....	•

Symbols on Etruscan and Roman Coins.

The symbols at this period were very similar to those on the Coins of Etruria, Umbria, &c., but in a few years heads of the chief Deities were introduced. It will be remembered that the Grecian Civic Coinage underwent a somewhat similar change when the indentations were no longer needed; the Deities would indeed naturally suggest themselves as the most appropriate emblems. The Gods of the Romans derived their origin from the early Kings of Italy: first in order is Janus, who was succeeded by Saturn, for a period indeed they reigned conjointly; the third Prince was Picus, also called Jupiter, after whom came Faunus, or Mercury: these were regarded as Deities, were especially honoured at Rome, and upon the extension of her conquests became incorporated with those of Greece.

Symbols on Roman Coins.

When, after the lapse of half a century or more, the States in the vicinity of Rome declined in power, their Coinage insensibly disappeared, while that of Rome assumed a character of its own; and the *As* and its parts each had devices appropriated exclusively to them. Hence we have the Goddess *Roma* (accoutred like the Grecian Pallas) as the first instance on record of the personification of a City, a practice afterwards carried to a great extent, as we shall perceive when the Imperial Coins fall under consideration. The following are the symbols at the period in question:

Roman Consular Coins.

As, head of Janus.	*Quadrans*, head of Hercules.
Semis ....Jupiter.	*Sextans* .....Mercury.
Triens....Minerva.	*Uncia* .....Roma.

Symbols on the reverses.

The double face given to Janus has not been satisfactorily explained; he was often confounded with Saturn, or Time, and was probably represented under this form as presiding over time past and future. The prow of a galley, which is the common, and for a considerable period constituted the sole, type on the reverses of the *As* and its parts, was adopted in commemoration of Saturn, who came by sea to the shores of Latium, instructed the rude inhabitants in agriculture, and was associated by Janus in the Government of the Country.

Diminution in the size of the As.

Such was the character of the early Roman Coinage; the changes it subsequently experienced, and the progressive stages of improvement which it underwent, were the fruits of time, the result of circumstances and of political emergency. A constant diminution is observable in the sizes of Coins in proportion to the political advancement of the Country which employs them; for as a Nation rises into importance, its demands necessarily augment, and the readiest method which presents itself of meeting the exigencies of the State consists in reducing the size of the chief Coin in circulation, yet assigning to it a value equivalent to that which it had borne before such a reduction took place. Upon the commencement of hostilities with the Carthaginians, from the expenses attending a war in a foreign Country, the *As*, as Pliny informs us, did not exceed two ounces in weight; its parts had, of course, decreased in like proportion. This diminution may also be ascribed to the introduction about that period of silver into the Mint; and as the Roman *As* and its divisions, recognised by the devices above specified, have been found of all sizes intermediate between the pound and two-ounce weights, we may fairly presume the reduction to have been gradual.

Compounds of the As.

At the period during which the *As* was three and four ounces in weight, and previously to the coining of silver, an inconvenience appears to have arisen from the want of Coin above the value of the *As;* hence pieces of larger denominations were struck, weighing double, treble, and quadruple of the *As*, and designated by the terms *Dupondius*, or *Bissas*, *Tripondius*, or *Tressis*, and *Quadrussis*. These Coins are not of frequent occurrence, and may be distinguished from the *As* and its parts of an early date (some of which equal them in weight) by the characters impressed upon them; all the reverses bear the symbol of the prow, and the obverses the head of Pallas, or possibly Roma; for they are often confounded by the ablest antiquaries. The *As*, we have stated, bore the character I, to denote its value of one pound, and this mark it retained when reduced to a few ounces in weight; the relative value of the *Bissas* was expressed by two of these strokes, the *Tressis* by three, and so on. The inconvenience which must have arisen from the size of these Coins, was probably the cause that so few were issued from the Mint; but, notwithstanding this circumstance, two or three pieces are known to exist equivalent in value to ten *Asses;* they

* i. 94. † xxxiii. 3

Numismatics.

are of the same date with the preceding, of about six inches in diameter, and are impressed with the numeral X denoting their value.

Further diminution of the As.

The *As libella*, as it was termed in its diminished form, experienced a further reduction to one ounce in weight during the IId Punic War, and again about 175 B. C., when it did not exceed half an ounce; at this standard it remained until the close of the Commonwealth. These successive changes had so much operated to diminish the parts of the *As* in size and value, that they were frequently discontinued, and with the last reduction the *Sextans* and *Uncia* altogether ceased.

Coins of the Families.

Soon after the introduction of silver into the Coinage, a practice became general of affixing the names of the chief families in Rome (probably intended as a compliment from the Mint-master) in the field of the Coins: they are consequently distinguished by the appellation of *Family Coins;* the name of the City also formed part of the Legend.

Arrangement of the Roman Asses.

From the peculiarities which characterise the Roman copper Coins, and the fluctuations they experienced in value, we may regard them as consisting of three kinds; the first of these extends from the reign of Servius Tullius until about 400 B. C. The Coins during this period are unwieldy pieces of metal, excessively rude in their fabric, and bearing a variety of devices, the emblems of the Etruscan and Umbrian Cities being used in common with those of Rome. The next division extends to 250 B. C., or about the middle of the Ist Punic War; these are of improved execution, and the types few in number, one device being appropriated to the *As*, and to each of its parts. The third and last kind extends to the Augustan Age; they are considerably reduced in size, of superior workmanship, and are greatly diversified in their symbols.

Institution of a Coinage of silver.

We now arrive at the silver Coinage of Rome, first introduced in the Capital 266 B. C. The form in which silver first appeared, was that of the *Denarius*, so termed from its value of ten *Asses*. These therefore supplied the place of the *Decusses*, or large copper Coins above alluded to. The earliest of these Coins weigh about ninety grains, and represent on the obverse the double-faced head of Janus, on the reverse Jupiter in his car, hurling his thunderbolts; these pieces were, however, soon dropped, and replaced by the *Denarius* of sixty-six grains, the *Quinarius*, or its half, of five *Asses*, and the *Sestertius*, a word employed by the Romans to express two parts of an integer and *half of the third;* thus in the present instance it formed one-quarter of the *Denarius*, containing two *Asses* and a half. The symbols affixed to the obverses of all these Coins were heads of the Goddess Roma, with wings on the helmet, (which distinguishes it from the head of Pallas,) and the upper part terminating in the head of a griffin. For the reverses two devices prevailed; the first of these were the twins Castor and Pollux, the other a Car of Victory. The Demigods Castor and Pollux were greatly honoured at Rome, and had their Temples in the city; this worship had its rise from a tradition that in the infancy of the Republic they aided the Romans in a battle with the Etruscans fought at the lake Regilla. They are represented on horseback precisely resembling each other; the stars placed over their heads imply their deification. The Car, guided by a figure of Victory, is a more common symbol; it is sometimes drawn by two and sometimes by four horses; hence the pieces were denominated *Bigati* and *Quadrati*. The characters constituting the Legend were for a considerable time limited to the name of the City, and the marks indicative of value; the *Denarius* bore the numeral X, which was afterwards converted into a *star*, and subsequently disappeared; the *Quinarius* bore the Roman character V; and lastly, the *Sestertius* IIS, to denote its value of two *Asses* and a half; the two lines were afterwards united thus HS. In a short time the names of the families were placed on the reverse, as on copper Coins of the same period.

Plate I. Fig. 17.

Fig. 20. Fig. 21. Fig. 22.

Fig. 22.

Fig. 19.

Roman Consular Coins.

A considerable time elapsed before these devices fell into disuse, but foreign conquests and the consequent influx of Grecian Coins at length enlarged their number; in lieu of the head of Roma we find representations of the chief Grecian Deities, who now became incorporated with those of the Eternal City; and thus are seen the effigies of Venus, Diana, Mars, Apollo, Ceres, Bacchus, &c., which, as they are generally accompanied by their attributes, may readily be recognised. On the reverses of the *Denarii* numerous emblematical and historical figures appear, but as the variety among these is almost endless, we shall not attempt an enumeration of them; it will be requisite for us to enter at some length into the symbols of the Imperial Coins, to which, as they nearly resemble many of the above, the reader is referred. One class of devices remains to be noticed, *viz.* the heads of Generals and Consuls, which at a late period supplanted those of the Deities. These representations were affixed by their descendants and by the Mint-masters, being either dictated by flattery, or designed to record their most important services while in office, in which case the events themselves were depicted on the reverse.

Symbols on the Denarii.

The silver Coins of the Republic may, like the copper, be distinguished into three classes; the first, including the Coins bearing the heads of the Goddess Roma, the Car of Victory, and the Twins. Some idea may be formed of the number of these, when, if Pinkerton be tolerably correct in his computation, they comprise ten-twelfths of the silver Coins. Those of the second division bear the heads of the chief Deities, and a variety of emblematical and historical figures; and the last, including but a very small number, is distinguished by the portraits of the Generals, Consuls, &c. with reverses like the preceding. In order to convey some notion of the immense number of Family Coins known to exist, it will be sufficient to state that they have been found inscribed with the names of nearly two hundred families, and, in a few instances, one hundred and fifty varieties to a single family. At the time in which an alteration was effected in the symbols, and heads of distinguished characters were introduced, their names were inserted in the Legend together with the office they held in the State, whether that of Consul or Proconsul, Quæstor, Imperator, or Triumvir.

Arrangement of the silver Consular Coins.

A Coinage of gold was instituted at Rome sixty years after the introduction of silver, and the pieces issued were of three kinds; *viz.* the *Scrupulum*,* weighing one-third of the *Denarius*, a Coin of double this weight, and the third equalling the weight of the *Denarius*, then of sixty grains. The head of Mars and an Eagle are the devices appearing on all these Coins; the name of the city ROMA is also inserted, and characters denoting their weight, and their value with reference to the *Sestertius*. As these three Coins are rarely to be met with

Institution of a gold Coinage.

Plate I. Fig. 23. Fig. 24. Fig. 25.

* Plin. xxxiii. 3.

Numismatics.

in Cabinets, they are introduced in Plate I., where the marks alluded to will be seen; the first of the two characters on the largest piece corresponds with the Roman numeral L. It will be proper in this place to remark that many antiquaries are averse from classing these with Roman Coins; but notwithstanding, as in their workmanship they resemble the Coins of Magna Græcia, as they perfectly accord with the accounts transmitted to us by Pliny of the earliest gold Coins of the Republic, there can be little doubt to which Nation they belong. The whole of Magna Græcia had been long subject to Rome, the brightest period of its Coinage had passed away, and the most skilful of the die-engravers probably centred in the Capital: the name of Roma likewise appearing seems to be conclusive.

New Coinage of Gold

This new Coinage, from the few pieces which have been discovered, must have been speedily dropped, and, judging from the distinct character of that which succeeded, it would seem that a considerable period elapsed before gold again circulated as the medium of commerce. The chief gold Coin afterwards issued was the *Aureus*, named from the metal, as the Greek *Chrusos* and *Chalcos;* together with the *Aureus* there appeared likewise its half, denominated *Quinarius*, *Semissis*, and *Semi-Aureus*. *Quinarius* was so called from being of the same dimensions as the silver Coin of that name, but it is surely misapplied. The *Aureus* is of twice the weight of the *Denarius*, though equalling it in size; the date of its appearance at Rome is unknown; as, however, both this Coin and its half, especially the latter, are of great scarcity under the Commonwealth, and as, moreover, they are impressed with symbols similar to those on the late *Denarii*, we shall not greatly err in referring the earliest of them to about 100 B. C.

Alteration in the value of the Denarius.

A material alteration took place in the value of the *Denarius* at a late period of the Commonwealth, which affected all the Coins of inferior value. This change Pinkerton conjectures to have occurred 176 B. C.; the *Denarius*, which had hitherto consisted of ten *Asses*, (as indeed its name implies,) was ordered to pass for sixteen; the *Quinarius*, in consequence, was rated at eight, and the *Sestertius* at four *Assaria;* the names were nevertheless retained, an inconsistency scarcely to be avoided, and which has prevailed with the Coinage of almost every Country. A few *Denarii* are impressed with the numeral XVI. on the obverse, which may possibly have had reference to their change in value, but on which no reliance can be placed, as various numbers were from time to time inscribed. It is remarkable that the issue of the *Sestertius* in brass, after having long circulated in the form of a small silver Coin, should have escaped the observation of Medallists until within the last few years. Pinkerton, in his *Essay*,* has pointed out, in a very satisfactory manner, the changes it underwent, before it came to be considered as the leading Coin, and that by which all large sums among the Romans were estimated. The *Sestertius* does not appear to have been struck in brass immediately upon the alteration in the value of the *Denarius*, as few of them have been found before the Augustan Age; the *Sestertius* may have circulated in silver during the Commonwealth at the value of four *Asses*, until, from the decreasing value of that metal, it had experienced such a diminution in size as to be productive of great inconvenience. The symbols on the *Quinarius* and *Sestertius*, upon their first appearance, perfectly resembled those of the *Denarii;* but they were subsequently varied; a head of Jupiter and a figure of Victory constituted the types of the former piece, whence they were denominated *Victoriati*, and a head of Mercury, with the Caduceus, those of the *Sestertius:* these last are of great scarcity, probably owing to their diminutive size.

Roman Consular Coins.

In the course of our remarks upon the Imperial Coinage, we shall briefly notice the changes to which the class of Coins just described became subject; but enough has been said to show that they are of themselves capable of bringing us acquainted with the gradual increase of the Roman power, from the period when its territory comprised but a few miles in extent, to that at which it aspired at universal dominion. Thus if we examine the most ancient Roman Coins, those reported to have been fabricated under the reign of Servius Tullius, we find them to be of the most barbarous execution, with the devices scarcely intelligible: they were evidently the fabrication of a rude, unpolished nation, which totally disregarded the cultivation of the Arts. We learn from History that Rome was for many centuries but a warlike city, its inhabitants inconsiderable, and the existence of the State itself precarious. The Coins just mentioned bear not the slightest resemblance to those of Greece, whence we infer that hitherto no intercourse had subsisted between the two Nations; on the other hand, they closely resemble the Coins of Etrurian Cities and the adjoining States, by which we learn that Rome was in communication, and perhaps alliance, with them. After the lapse of a few years, we find the symbols adopted by the neighbouring Nations fall into disuse; from which circumstance we may conclude that either they subsisted under the protection of Rome, or were annihilated by her in her conquests. The progressive stages of their decline, might, we conceive, be ascertained with some accuracy, were greater attention bestowed on this curious class of Coins, but from their general rudeness, and the uncouth representations they bear, they are too frequently disregarded. If the diminution in the size of the Coins can be proved to have been gradual, their weights would enable us to ascertain their respective eras, though unfortunately, from their long continuance underground, and from accidental injuries, they are seldom found in a perfect state, and much is consequently left to conjecture. To return to the present view of our subject, the gradual reduction in the size of the Coins indicates a proportionate increase in the wealth and power of Rome; and upon arriving at the Ist Punic War, we may reasonably infer from the Coins, that a communication now subsisted with some foreign power,—a new metal is introduced in the Coinage, and the execution of it is considerably improved. This last circumstance was probably caused by the conquest of Sicily and the Southern part of Italy, Countries in which the Art had long attained to maturity. If we descend to a yet later period, that at which Greece was formed into a Roman Province, we shall find, on viewing the Coinage, an infinite variety in the devices, while the execution in gold and silver is far superior to all that had yet appeared; we are thereby informed that their commerce was greatly extended, and that the conquest of Greece had caused an influx of works of Art from that Country, and probably of the artists themselves.

General survey of the Coins of the Commonwealth.

* *Essay on Medals*, sec. 7.

Numismatics.

The following Tables, exhibiting the fluctuations in value of the Coins of the Commonwealth at different periods of its History, are introduced to elucidate the preceding remarks:

About 300 B. C.

Uncia.

2	Sextans.					
3	1½	Triens.				
4	2	1½	Quadrans.			
6	3	2	1½	Semis.		
12	6	4	3	2	As.	
24	12	8	6	4	2	Bissis. *Dupondius.*
36	18	12	9	6	3	1½ Tressis. *Tripondius.**

About 200 B. C.

								Weight. oz. grs.	*Value.* s. d.
As								1 0	0 1½
2	Dupondius							2 0	0 1
2½	1½	Sestertius						0 15	0 2
5	2½	2	Quinarius					0 30	0 4
10	5	4	2	Denarius				0 60	0 8
50	25	20	10	6⅔	Scrupulum			0 20	3 4
100	50	40	20	13⅓	2	Tremissis		0 40	6 8
150	75	60	30	20	3	1½	Semissis†	0 60	10 0
Copper.			Silver.			Gold.			

II. Roman Imperial Coins.

The Imperial Coins of Rome form the most complete, and, we may perhaps say, the most interesting series extant; from the great diversity of the symbols a classification of them is attended with much difficulty, yet as there are no other means of acquiring a knowledge of them, we shall resort to that method of arrangement, which, in the present case, will be somewhat elaborate.

Arrangement of the symbols.

All the symbols may be arranged under four heads, as shown in the annexed Table; in which, also, the various subdivisions of the classes are specified. It is almost needless to observe, that the Deities, Moral Virtues, &c. are too numerous to be specified in the Table. The same order will be preserved in the observations which follow, explanatory of the various modes in which the effigies, ceremonies, &c. are delineated on the reverses.

Roman Imperial Coins.

- Symbols relating to ..
  - Religious ceremonies ...
    - Sacrifices.
    - Consecrations.
    - Instruments of Sacrifice.
    - Miscellaneous.
- The Religion of the Romans .....
  - Heathen Mythology ...
    - Deities.
    - Personifications....
      - Moral Virtues, and other Allegorical subjects.
      - Divisions of the World, Countries, Provinces, Cities and Rivers.
- War .....
  - Representations of the several forms observed by the Romans in conducting their wars.
  - Implements of warfare.
- Games .....
  - Chariot races.
  - Combats with wild beasts.
  - Naumachiæ.
- Embellishments of the City .....
  - Buildings appropriated to religious purposes.
  - ——— relating to warfare.
  - ——— the Games.
  - ——— of a miscellaneous kind.

1. Symbols relating to Religion.

The representations of Sacrifices, in which a Priest is seen offering up a victim in front of a Temple, and attended by his inferior officers, are highly interesting, as they afford a great insight into the manner of conducting these ceremonies. The Consecrations are variously depicted; they allude to a practice very prevalent at Rome, that of deifying the Emperors and Empresses after their death. An Eagle, as the bird of Jupiter, generally expressed the deification of an Emperor, and a Peacock, the bird of Juno, that of an Empress; over the figures *Consecratio* is inscribed. The other devices which denoted a deification were the Funeral Pile and the *Thensa*, or divine chariot; the former of these was constructed on a very magnificent scale, adorned with hangings, and upon it the Emperor was burned in effigy: the latter represented the chariot in which the Gods were carried in the religious processions. The Instruments of sacrifice consisted of Altars and Tripods, the last being designed for liquid offerings, and those which were conducted without the Temples; they are frequently placed on Coins, to denote the piety of the Emperor, in which case they are accompanied by the Legend *Pietas*. Instruments of sacrifice are frequently placed on the reverse for the same purpose. The instruments commonly introduced were an axe for slaying the victim, vessels containing the holy water for sprinkling the offering, a *Patera*, or kind of plate, on which were placed the portions consecrated to the Gods, and, lastly, the *Accerra*, or censer. Plate II. Fig. 8.

Figures of the Deities.

The Deities are represented at full length, accompanied by their attributes: thus Venus bears the apple, Ceres, torches, Isis the sistrum, and Mars a trophy on his shoulder; this last figure is conceived to have been designed for Romulus. Jupiter Capitolinus is represented seated within his Temple; in his right hand he bears a sceptre, and in his left hand the thunderbolt. Vesta is represented veiled, after the manner of her own Virgins; in one hand she bears a sceptre, indicative of her divinity, and in the other the *Palladium*; a small figure of Pallas, on which, according to tradition, the fate of Troy depended, and which, upon the destruction of that city, was secured by Æneas, brought to Rome, and

* The *Quadrussis* and *Decussis* are of very rare occurrence. The weights are not inserted in this Table, as they cannot be ascertained with any precision; the *As* at this period was of from two to three ounces.

The *Quincunx*, containing five ounces, was sometimes coined.

† The parts of the *As* as before. The terms *Semissis* and *Tremissis* are introduced with reference to the *Aureus*, struck some time after.

Numismatics.

Plate II. Fig. 9.

consigned to the care of the Vestals. The Goddess Roma is of very frequent occurrence on Imperial Coins, in which she is represented seated on a pile of arms, to denote her achievements in war; she is armed after the manner of Pallas; in her right hand is sometimes a globe, as the emblem of universal dominion, and at other times a figure of Victory; a sceptre is occasionally found in her left hand, but more commonly a sword.

Moral virtues and allegorical figures.

Among the Moral and Allegorical Figures, Hope, Piety, Peace, and Eternity are chiefly deserving of notice. Hope, the most common personification, is represented holding her dress with her left hand, that it may not impede her in her march, it being characteristic for Hope to press forward to the attainment of her object, as it is of Fear to recede; in her right hand she bears the bud of a flower. Piety is always represented veiled, as was the practice with females when engaged in the performance of any religious rite; she appears casting incense on an altar from a censer, which she bears in her left hand. Under this personification we may sometimes trace the origin of our modern representation of Charity, the figure of Piety being frequently attended by children, to imply that Piety to our Creator is best shown in our good deeds to one another. When the above attributes are omitted, the Stork, from the legendary attachment of that bird to her offspring, is introduced as symbolical of the duty of children to their parents. Peace is a common personification, and is similar to the modern representation of it; the cornucopia is, with scarcely an exception, placed in her hands, and in addition, we have the trite emblem of the olive branch. Eternity occurs less frequently, and is variously depicted: sometimes she is veiled, and bears a sceptre; a globe is frequently placed in one hand, surmounted by a Phœnix, with the head encircled by rays, it being the offspring of the Sun. Eternity is also figured bearing in her hands the Sun and Moon. The attributes of a few of the Deities and Moral Virtues are not unfrequently placed alone on the field of the Coin; wherever this occurs, they may, in most cases, be understood to bear the same signification as when associated with the figures: a cornucopia, for example, denotes the plenty which prevailed during the particular Emperor's reign; two of them, perhaps, signify an extraordinary plenty. The caduceus standing alone forms a common reverse, and is a symbol of Peace. We may also mention the Virtues Concord and Fidelity, represented under the form of two hands joined. The good-will which existed between the Emperor and his people was represented by the former taking the hand of one of his chief officers. It was not unusual to combine two or more symbols of this kind on a single reverse; the Romans, indeed, frequently indulged in this kind of Poetical imagery; the practice prevailed chiefly in the Augustan Age, and thus upon Peace being established between Augustus and M. Antony, a Coin was struck, on which appear two cornucopiæ, supported by hands joined, and between them a caduceus. Augustus was born under the sign Capricornus, which he therefore represented on his Coins; he employed a Globe to signify possession of the world, and a Rudder to denote rule; all of these types appear united on the Coins of that Emperor.

Fig. 3.

Figures of the Countries, Provinces, &c.

We next proceed to the figures of different Countries. Europe was represented by Europa and the Bull; for Asia a portion of a vessel was introduced, that being the quarter of the Globe in which Navigation was said to have been first practised; Africa offers a very complete personification, she appears in a helmet formed by the proboscis of an elephant, in one hand a scorpion is placed, and in the other a cornucopia; a bull is sometimes introduced to denote that Agriculture formed the chief employment of the natives. The ibis denoted Egypt, and the camel Arabia; to Spain was assigned an olive branch, and a bow and arrows to Parthia. Among the Provinces, the personifications of Judæa and Britannia are remarkable. Upon the destruction of Jerusalem by Titus, 70 A. D., numerous Coins were struck, on the reverses of which the Genius of the City appears bewailing the calamity which has befallen it; she is veiled, expressive, in this instance, of distress, and seated on the ground, an attitude implying captivity; behind the figure a palm tree is introduced, it being the growth of the Country; also a Hebrew captive with his hands tied. In the personification of our own Island, as it has been preserved on a small number of Imperial Coins, we have the origin of the Britannia affixed on the modern current Coin. The figure sometimes bears in her hand a Roman standard, denoting that the Country was a Province of the Empire; she sometimes appears armed, (as on our existing copper money,) indicative of the warlike disposition of the natives. There is also a Coin on which the figure of Britannia is seated on a globe, with waves rolling at her feet. As the above Coins are possessed of more than ordinary interest, the reader is referred to Pinkerton's *Essay on Medals*, in which will be found engravings of six out of ten, all that in his time were known to exist. There are frequent allusions on Roman Coins to the victories obtained over the early Britons, which are represented by a Triumphal Arch, with the legend *Britannia*. In the last division of this class are the Rivers: the Tiber is recognised by the introduction of the twins suckled by the wolf. It is worthy of observation, that the Romans have invariably represented the River Gods in a reclining attitude. The Nile holds a cornucopia in his hand; he is sometimes represented reclining on an urn, from which water is issuing, and the mouth of it partly concealed by drapery. Two animals usually accompany this personification, the Crocodile and the Hippopotamus.

Roman Imperial Coins.

Origin of the figures of the Provinces on Roman Coins.

Figures of the Provinces are not common until after the Augustan Age; the circumstances which gave rise to their adoption are various, as upon a new Province being annexed to the Empire, upon the Emperor recovering one which had been overrun by the Barbarians through the indolence and apathy of his predecessors, and also upon an Emperor visiting Provinces remote from the Capital, or making the circuit of his dominions. Reverses thus engraved, therefore, cease with the decline of the Empire, when the Barbarians of the North had so firmly established themselves on the frontiers, that all attempts to repel them were ineffectual. The most considerable of Trajan's conquests were the formation of Dacia into a Roman Province, and the reduction of Armenia, Mesopotamia, and Parthia: all which acquisitions were severally recorded on his Coins. The Emperor Hadrian made a complete circuit of his dominions, and his Coins have been found inscribed with the names of no fewer than twenty Provinces. The Emperors Claudius, Hadrian, Antoninus Pius, Septimius Severus, and Commodus, who carried their arms into Britain, have had that conquest recorded on their Coins, by the figure of Britannia as above

Numismatics.

described. Pope has delineated in very polished and harmonious verse this system of Coinage.

> Ambition sigh'd, she found it vain to trust
> The faithless column, and the crumbling bust;
> Convinc'd, she now contracts her vast design;
> And all her triumphs shrink into a Coin.
> A narrow orb each crowded conquest keeps;
> Beneath her Palm here sad Judæa weeps;
> Now scantier limits the proud Arch confine,
> And scarce are seen the prostrate Nile and Rhine.
> A small Euphrates through the piece is roll'd:
> And little Eagles wave their wings in gold.

2. Symbols relating to war.

Various circumstances connected with War, each accompanied by an appropriate Legend, are frequently represented on Roman Coins. The Emperor is sometimes seen haranguing his soldiers; the Legend *Adlocutio* illustrating the device. The departure of an expedition was always attended with great pomp, prayers and sacrifices being offered up for its success; this circumstance is recorded on the Coins, with *Expeditio* for the Legend. The expedition is also occasionally represented crossing a river either by vessels or a bridge, when the Legend *Trajectus* is introduced; and lastly, we have the return and triumphal entry of the Emperor or General, who appears in a chariot attended by Victory; the Legends accompanying this device are *Triumphus* or *Victoria*. The reception of the Emperor at the several stations was expressed by the Legends *Adventus* and *Profectus* accompanying the device: in the latter case the Emperor is attended by one or more of his chief officers; and in the former by the Genius of the City, at an altar, offering up a sacrifice in gratitude for his safe arrival.

The implements of warfare consist of Standards, Shields, Cuirasses, and Trophies; Heaps of arms also appear as tokens of victory. Victory also is frequently seen recording on a shield the conquests of the Generals or Emperor. A Warrior is often the type of the reverse, also the Roman Eagle, and Laurel branches. The Crowns represented on Coins are of two kinds; the Rostral Crown, which rarely occurs, and the Oaken or Civic Crown, common on Coins of Augustus, and within which the words *Ob cives servatos* are inscribed. This Crown, it will be remembered, was awarded to such as had saved the life of a Roman citizen; and though we are not to take this in the literal sense, when applied to the Emperor, he may nevertheless be considered as entitled to that honour, by having established Peace throughout his dominions.

3. Symbols relating to the Games.

The number of devices relating to Games is very inconsiderable, and they were, for the most part, affixed to the Coins of those Emperors who were addicted to those Festivities. Naumachiæ are occasionally representations.

4. Symbols relating to the embellishment of the City.

Temples are depicted on the Coins of nearly all the Emperors. Those of Jupiter Capitolinus and Janus are of common occurrence; the latter being a small, square shrine, just sufficiently capacious to contain a Statue of the God. On the Coins of Augustus appear the Temples erected by that Emperor in honour of Apollo, Juno, Mars, and Julius Cæsar; generally the porch only of the Temples is represented, and within it is placed a small Statue of the Deity. Triumphal Arches are very common devices, and in the event of a foreign conquest were immediately affixed on the Coins; they are inscribed with the name of the conquered Nation, and adorned with trophies. The Column of Antoninus Pius, now standing, is a common type on his Coins. The Rostral Column appears on Coins of Augustus, in

Plate II. Fig. 1

honour of the Battle of Actium. Equestrian Statues, erected to many of the Emperors by the Senate and Roman People, in consideration of their services to the State, are delineated on the reverses of several Coins.

Roman Imperial Coins.

Representations of the Theatres, Amphitheatres, and Circuses are preserved on a few Imperial Coins, but they are by no means common. The Forum of Trajan is found on one of his Coins; and Basilicæ, Baths, Ports, Bridges, and Aqueducts were occasionally introduced.

Having concluded our summary of the devices, (in which enumeration all that merit the attention of the general reader have been specified,) we shall proceed to notice the Legends, of much greater extent on Roman than on Grecian Coins.

Legends on Roman Coins.

We have already enumerated several of these in our description of the symbols; and, indeed, the characters on the reverses of the Coins are little more than explanatory of the type; thus the Allegorical figures, though they may be readily known from being accompanied by their attributes, have their names introduced: the same may be observed to be the case with the figures of the Provinces. In the Legends accompanying these last, we perceive the Roman Tongue to be admirably adapted for recording events, where brevity of expression is important; the following examples are remarkable for their comprehensiveness: *Judæa capta*, *Salus Generis humani*. *Gaudium Reipublicæ*. *Asia subacta*. *Tellus stabilita*. *Roma renascens*. But what is now to engage our attention, is the characters inscribed on the obverses, to which the portraits of the Emperor or Empresses were affixed. Upon the first inspection of a Roman Imperial Coin, we are apt to imagine that the Legends cannot be deciphered without much difficulty; and, indeed, it must be granted that great confusion prevails from the numerous abbreviations, and the deficiency of stops. In order to convey to our readers a clear idea of their nature, we propose to analyze, if we may so express ourselves, the Legend of an Imperial Coin; and we select for that purpose one of the Emperor Titus. It will be perceived, on examination, that the titles conferred on the early Emperors were used in common by their successors; and these being, therefore, once understood, a large portion of the Legend of almost any Imperial Coin will be known. When the characters encircle the device, they form what is denominated the *Legend;* when they occupy the field of the Coin, they constitute an *Inscription;* and when occupying the lower extremity of the piece, and separated from the area by an horizontal line, they are termed the *Exergue:* (ἔξ ἐργῆ, out of the work:) the date on the reverse of our English copper Coins generally occupies this station. Before proceeding to examine the Coin we have selected, we will briefly specify the titles commonly annexed to the Throne, and whence they derived their origin. The title *Imperator*, or Emperor, was under the Roman Commonwealth a military distinction, answering in some measure to General with us; it was subsequently conferred upon Octavius by the Senate, to denote the supreme power in the State, and came into general use with his successors. This title was expressed on the Coins simply by the three first characters, IMP. About the Age of Constantine the Great it fell into disuse, that of *Dominus Noster* being substituted; the initials D. N. are all that appear on the Coins. The appellation of *Cæsar* originated in the Julian family, in consequence of one of them having had in his possession an elephant, which animal in the

Plate II. Fig. 3.

Fig. 2.

Numismatics.

Punic Tongue is expressed by that word. It was assumed by all the descendants of that family, and after so long a period seemed in a manner inseparable from the Throne. The title *Augustus* was conferred by the Senate on the young Octavius, at his express desire: it was borne in his honour by all the successors to the Empire, as was also that of *Augusta* by the Empresses, and it was expressed on Coins by the three first letters, AUG. The power, equivalent to that of a Tribune, which was conferred on Augustus, was expressed on his Coins by the words *Tribunitiâ Potestate*, or more generally in the abbreviated forms TRIB. POT. and TR. P. The election to the above office was annual, and as the Emperors (except in one or two instances) were elected immediately on their accession, wherever numerals are annexed they denote the year of the Prince's reign. The glorious title, *Pater Patriæ*, or Father of his Country, expressed by the initials P. P., was accorded with great propriety to the Emperor Titus; the distinction, it must be confessed, was rarely merited by his successors, but being calculated to flatter their vanity was seldom omitted. Among other epithets, equally misapplied in aftertimes, was that of *Pius*, originating with the first Antoninus, one of the most perfect characters to be found in History. The office of High Priest, or Superintendent of the Pontiffs, was assumed both by Julius and Octavius upon their coming into power; it is frequently inscribed on their Coins, and, like the preceding titles, was retained by their successors. It was expressed by PONTIFEX MAXIMUS, though commonly abbreviated, as PONT. MAX., and P. M. The office of *Consul*, assumed by the Emperors, was signified by the three letters COS. If we now inspect the Coin of Titus, represented in Plate II., many of the above titles will be found inserted in the Legend; the following is the order of the characters, the names and titles being given at full length. *Imperator Titus. Cæsar Vespasianus Augustus. Pontifex Maximus. Tribunitiâ Potestate. Pater Patriæ. Consul VIII.* The letters S. C., *Senatus Consulto*, affixed invariably to the Imperial Coins in first and second brass, denote that they were struck by a decree of the Senate; to that Body was decreed the power of striking brass Coins, and to the Emperor those of gold and silver. The above characters consequently never appear on the Coins in these latter metals.

Titles annexed to the Throne.

Plate II. Fig. 3.

Fig 1. 3. 5.

II. Grecian Imperial Coins.

Upon the dissolution of the Greek Empire, the several Countries were formed into Roman Provinces; over each of these a Governor was appointed, and a Coinage instituted in the chief Cities. These Coins are inscribed with Greek characters; they class notwithstanding with those of Rome, from being struck in Countries subject to that Empire, and from bearing heads of the Emperors on the obverses: in point of execution, the Coins of this class are very inferior to those which were issued from the Capital.

Divisions.

The Imperial Greek Coins divide themselves according to the forms of government instituted by the Romans in their conquests; and thus we have Provinces, Colonies, and *Municipia*, or Free Cities. These are all the workmanship of inferior artists, and exhibit great sameness in the devices, which are for the most part included in the enumeration of the symbols on Imperial Coins. The types commonly consist of the Temples of the Deities in the respective Cities, which, from their great variety, are not deficient in interest. The Legends, as we stated, are in Greek, and often literally translated from the Roman; as ΑΥΤΟΚΡΑΤΩΡ, for Emperor; ΣΕΒΑΣΤΟΣ, Augustus; ΚΑΙΣΑΡ, Cæsar, &c. Among the Legends peculiar to this class, we may mention the names of Magistrates, and the title ΝΕΩΚΟΡΟΣ, applied to certain Cities, implying their appointment to the guardianship of the shrine of some celebrated Deity: a distinction much coveted, as the Temples greatly contributed to the wealth and importance of many States. As these Coins, not only of the chief Cities, but also of many Towns of inferior note, are abundant, and as the Provinces at that time included nearly all the civilized parts of the Globe, their number is almost infinite: they commence in the reign of the Emperor Augustus, and terminate with that of Gallienus, about 250 A. D. As an enumeration of the Cities which struck Coins would occupy too much space, and, moreover, be devoid of interest, we shall specify the most considerable of the Provinces in which they occur. Proceeding in an Easterly direction, we arrive at Mæsia, Thrace, and Macedonia, where they are of common occurrence; a few are to be met of Cities in the Peloponnesus, the Islands of the Ægean Sea, and those adjoining the Ionian coast. Of the Cities of Asia Minor they are found in great abundance; in the district of Phrygia no fewer than fifty Cities obtained the privilege of striking Coins; in Lydia they have been found of about thirty Cities; in Cilicia twenty and; so on of the other Provinces, Bithynia, Cappadocia, Pamphylia, Galatia, &c. Imperial Greek Coins are common of many Cities of Phœnicia, at that period divided into Commagene, Palestine, and Cœle-Syria. These Coins are chiefly of copper, the silver which exist being confined to the leading Cities, as Antioch, Tarsus, Tyre, Sidon, &c.

Grecian Imperia. Coins.

The Greek Coins of the City of Alexandria, struck in the Imperial Age, from their number and extent, (they reach to Constantine,) have a distinct place allotted to them in a Cabinet. In their fabric they are greatly inferior to the Roman Coins; and those of Copper are thick and uncouth in their form, with the characters at times barely legible. The symbols are slightly varied from those of the preceding class, by the introduction of numerous devices characteristic of the Country; as heads of Jupiter Ammon, Isis, and the God Canopus; also animals of worship and plants,—among the former, the sphinx and serpent prevail, and among the latter, the lotus and wheat-ear.

Imperial Coins of the City of Alexandria.

Coins of the Colonies, like those of the Provinces, extend to the reign of Gallienus; this form of government prevailed chiefly in the Augustan Age, but the number of the Cities is inconsiderable. Spain is the chief repository for the Colonial Coins, and those of the *Municipia* or Free Cities, governed by their own laws; in that Country there are found Coins of about thirty Colonies, all of which were planted in the reign of Augustus. As few of the Cities were permitted by succeeding Emperors to strike their Coins, and as the privilege was altogether denied them by Caligula, the pieces are not many in number; they abound chiefly of the Cities Carthago Nova, afterwards Carthagena, Cæsarea Augusta, corrupted into Saragossa, Bilbilis, Turiaso, and Emerita, the present Merida. The remaining Colonies whose Coins remain, were scattered throughout the Empire, and are as follows: Nemausus, in Gaul, (the only Colony permitted to strike silver Coins,) Panormus, Carthage, and Corinth; Philippi and Pella, in Macedonia; Parium, Alexandria, Troas, and Ico-

Colonial Coins.

Numismatics.

nium, in Asia Minor; Tyre and Sidon; Ptolemais, Cæsarea, and Damascus; also a few Cities in the territory of Edessa. The type affixed to the early Colonial Coins, was that of a team of oxen, and subsequently banners appear; of these it may be remarked, that when standing alone they signify the Colony to be drawn from one Legion; but where several are introduced, they indicate the Colony to have been drawn from as many Legions as there are banners.

III. Medallions.

Medallions are all that remain to be noticed among the Imperial Coins; they were struck both at Rome and in the Provinces, and hence are divided into Roman and Grecian. The term Medallion is applied to those productions of the Mint which, in gold, exceed the size of the *Aureus*, in silver, of the *Denarius*, and in copper, of the first or large brass. Doubts have long prevailed among antiquaries as to the purposes for which they were designed; they are generally conceived to have been struck upon similar occasions to those on which Medals are coined among ourselves; upon an accession to the throne, in commemoration of any important victory, or as specimens of workmanship. There are, however, a few circumstances which favour the supposition that they were intended for circulation as money. Pinkerton speaks of gold Medallions being found equivalent in weight to two, three, and sometimes four *Aurei*; also some in silver to a like number of *Denarii*; thus making them analogous to the Greek *Tetradrachmæ*. The smallness of the number of existing Medallions by no means weakens this supposition; as at the present day the Two-guinea pieces, silver Crowns, and copper Two-penny pieces are by no means common, and might in a future Age, with equal propriety, rank as Medals. Medallions are at all times accounted rare, but those struck in the Grecian territories are the most numerous, and are distinguished from the Roman by their thinness and inferiority of workmanship. A gold Medallion exists of Augustus Cæsar and one also of Domitian, but few in any of the metals appear prior to the reigns of Hadrian and Antoninus; those in brass are considerably the largest, many of them being several inches in diameter. The Provinces in which they chiefly abound, particularly those of silver, are Asia Minor and Syria, including the opulent Cities of Ephesus, Smyrna, Thyatira, Pergamus, Cyzicus, Magnesia, Cæsarea, Sardis, Antioch, Tyre, Sidon, &c.

Value of Roman Imperial Coins.

As in a former section we detailed the value and denominations of the Roman Coins down to the Augustan Age, there remains but little to be noticed under this head. For the period of two centuries the Coins bore nearly the same value as at the close of the Commonwealth, experiencing, however, a gradual diminution in their sizes; but at the decline of the Empire, from the leading Coin being so materially reduced in size, it was found necessary, from time to time, to issue pieces of greater value. The amendment of the Coinage engaged the attention of many Emperors, but our knowledge on the subject is very confined. The confusion of sizes, occasioned by the new Coinage, prevailed to such an extent as to render it impossible, upon reference to the Coins, to point out the denominations specified by Historians; the results indeed are so unsatisfactory that we shall merely offer some few remarks, which will enable us to trace the changes which the chief Coins in each metal underwent. Since the brass Coinage is that of chief importance, we commence with the *Sestertius*. This Coin, the reader will recall to mind, was equivalent in value to four *Assaria* and two *Dupondii*; and that four of them were included in the *Denarius*. The copper Coins being found of several sizes, are distinguished into first, second, and third brass. The first, or large brass, includes the *Sestertius*; this Coin appears about the reign of Augustus, and extends without intermission to that of Postumus. In the reign of Alexander Severus it had sustained a loss of one-sixth in weight; with Trajanus Decius it was reduced to one-half, and finally it did not exceed a third of its original size. The second, or middle brass as it is termed, approximates in size to our Halfpenny, and includes the *Dupondii* and *Assaria*. The *Dupondius* accompanies the *Sestertius* in the several stages of its decline, and closes together with it; the *As*, also, at that period, did not exceed the size of the early *Denarius*, and, together with its parts, was numbered with the third brass. The third, or small brass, comprises all the parts of the *As*, and consequently admits of great diversity in size. The *Dupondii* and *Assaria* were of equal dimensions though differing in their value, the latter being but one-half of the former; this circumstance is thus explained. In a former page we noticed that brass was highly esteemed at Rome, much more so than copper, it is therefore conceived that, as Imperial Coins of the middle size exist in both metals, brass was used for coining the *Dupondii*, and copper for the *Assaria*. Pinkerton states that the *Sestertii* and *Dupondii* were of brass, and the *As* and its parts of copper, a metal but half the value of the former. This ingenious explanation is correct in many points, but we cannot agree with the author in considering it as conclusive; for upon examining the Coins in question, we frequently meet with *Sestertii* unquestionably of copper; neither are there sufficient grounds for pronouncing all of the second size existing in brass to be the *Dupondii* mentioned by Pliny and other writers. Under the reign of the Emperor Gallienus, the chief copper Coins were the *Assaria*; these, from their diminished size, came to be numbered at sixty to the *Denarius*, and in the Age of Constantine they scarcely exceeded twenty grains in weight. With the Emperor Diocletian a new Coin appeared, denominated the *Follis*; this remained the chief copper Coin under the Lower Empire, and from the writers of that Age we learn that it was variously subdivided. The types of the reverses consisted simply of Greek characters, supposed to express the number of *Noumia* (the smallest copper Coin then in circulation) which they contained; thus the *Follis* bore the letter M, to denote forty *Noumia*, its half K for twenty, and the quarter I for ten. Our knowledge, however, of these Coins is too imperfect to admit of our placing any great reliance upon this computation.

Value of Roman Imperial Coins. Plate II Fig. 1. 3. Fig. 5.

Brass and copper.

The silver Coins in the Age of Augustus were of two kinds, the *Denarius*, containing sixteen *Assaria*, and the *Quinarius*, or its half; these pieces gradually decreased, and in the reign of Caracalla were struck of two sizes; the new Coin was denominated *Argenteus*, and raised in value to one-third of the current *Denarius*, containing consequently twenty-four *Asses*, or *Assaria*. The common *Denarius*, which now went by the name of *Minutus*, ceased to be struck in the reign of Gallienus, the *Argenteus* supplying its place; the terms *Argenteus* and *Denarius* were then but different names for the same Coin, which at that time contained the surprising number of sixty *Assaria*.

Fig. 4. 7. Silver.

Constantine the Great effected a material alteration

Numismatics.

in the silver Coinage, by the introduction of the *Milliarensis*, which he caused to pass for twenty-four *Folles*. *Denarii* were struck so late as the reign of Heraclius, when they did not exceed ten grains in weight; upon the first appearance of that Coin (the parent of our silver Penny) it exceeded ninety grains in weight, and under Augustus it had fallen to sixty grains at a medium.

Plate II. Fig. 6. Gold.

The *Aureus*, the chief gold Coin under the Commonwealth, and the *Semi-aureus* constituted the sole pieces in gold for nearly three centuries; at the expiration of that period, *Aurei* were struck of several sizes, and new Coins issued of one-third and of double their weight; the former being denominated *Trientes*. Until the reign of Alexander Severus, the *Aureus* passed current for twenty-five silver *Denarii*; the weight originally given to this Coin was about 120 grains; it now fluctuated between eighty and ninety grains. Constantine the Great accommodated the *Aureus* to his new silver Coinage, and gave it the name of *Solidus*; this piece remained the chief gold Coin until the fall of the Eastern Empire, and for a time *Semisses* and *Tremisses* were struck. The *Semi-aureus* of gold is at all times a very scarce Coin, but was more especially so under the reigns of the early Emperors.

The following Table of Roman Coinage exhibits the weights and value, as established about the Age of Augustus:

3d Brass.*	2d Brass.	1st Brass.	Quadrans.							Weight. oz.	Value. £.	s.	d.
2			Sembella *Semis.*							0½	0	0	0½
4	2		As or Libella *Assarium.*							0¼	0	0	0¼
8	4	2	Dupondius							0½	0	0	1
16	8	4	2	Sestertius *Nummus.*						1	0	0	2
32	16	8	4	2	Quinarius *Victoriatus.*					grs. 30	0	0	4
64	32	16	8	4	2	Denarius				60	0	0	8
960	480	240	120	60	30	15	Semissis (15 Denarii) *Semi-aureus.*				0	10	0
1920	960	480	240	120	60	30	2	Aureus (30 Denarii)			1	0	0

Workmanship of Roman Imperial Coins.

Before quitting the Roman Coins, we shall, in accordance with our plan, consider the light in which they are to be regarded as works of ancient Art. The inspection of the Imperial Coins will, we feel confident, be productive of the highest satisfaction; but we must bear in mind that Rome herself in works of Art cannot sustain competition with Greece. The period at which the Roman Coins stand preeminent for the excellency of their workmanship, may be placed in the Age of the Antonini. We mentioned that patronage was extended to the Arts by Augustus Cæsar, as may indeed be inferred from his Coins; (especially those in gold and silver;) no material improvement is evinced in the Coinage under the reign of his immediate successors, probably owing to the turbulent state of the times; but a superiority is decidedly manifested as we descend to the reigns of Vespasian and Titus, after which period they gradually increase in beauty of fabric, until they attain their greatest excellence at the epoch above-named. We may date the decline of the Art as commencing about the Age of Commodus; there are, it is true, instances of Coins, in the century which succeeded, rivalling in their execution those of the best Ages of the Empire, but they are of rare occurrence. For the fifty years antecedent to the extinction of the Western Empire, the Coins are of the worst possible fabric, equalling, in the barbarism of their workmanship, those of the Dark Ages; and, indeed, the Coinage of the Princes who immediately preceded is but little superior.

Workmanship of Roman Imperial Coins.

Portraits on Roman Coins.

No fewer than three hundred portraits are preserved in the series of Roman Imperial Coins; for not only are the Emperors depicted, but also the Empresses and the several branches of the Imperial family. Among the many examples which might be adduced, we select those of Augustus and Trajan. Independently of the Coins of Augustus, we meet with those of his Empress Livia, of their daughter Julia, and son-in-law Agrippa; a few also occur of the grandsons of the Emperor, namely Caius and Lucius Cæsar. Besides the Coins of Trajan we meet with those of his father Trajan, of his Empress Plotina, of her sister Marciana, and niece Matidia. The Roman Emperors commonly appear either with radiated or laurel crowns, but never with the diadem, as the Greek Princes. In a late period of the Empire, helmets were introduced, and the bust of the Emperor was clothed in armour. Endless variety prevails in the head-dresses of the Empresses.

An opinion, we believe, has gained ground, that no reliance can be placed upon the representations handed down to us in these minor productions of ancient Art; we can only account for the prevalence of this notion from the portraits occasionally to be found in Historical Works, and presumed to be accurate delineations of the Coins. It must be confessed that far the greater number of those which have appeared in Numismatic Works, in which at least accuracy would be looked for, are entirely disgraceful to them. The heads of the twelve Cæsars are of common occurrence, both in the form of engraved plates and of casts; these, we admit, do generally retain the distinguishing features of the Emperors, but upon comparing them with the Coins, they will be found to fall considerably short of that marked expression, that admirable discrimination of character, prevalent throughout the series. Among the instances which might be adduced in favour of strength of resemblance, we may mention the perfect accordance in character of the Coins, however numerous, of the same Prince during the better Ages of the Empire; and again, the perfect agreement of these with the remaining busts of these Emperors; and here, in passing, an instance of the practical utility of the study of Numismatics presents itself. Marbles frequently exist without any inscription which can inform us for whom they were designed: Coins, on the other hand, being invariably accompanied by a Legend, have effectually enabled antiquaries to adjudge the heads to their respective Emperors. One more observation will close our remarks on the portraiture. Were the Legend of an Imperial Coin totally obliterated, and only the head entire, but a little knowledge of Coins will enable the student to pronounce for whom it was designed; and we will venture to say that the inspection of a

* The minor divisions of the As were sometimes struck.

Coin would be attended with a similar result, in the hands of a skilful Medallist, if not only the Legend, but a considerable portion of the head, were effaced.

Sect. III.—Coins of Barbarian Nations.

Barbarian Coins are those inscribed with characters differing from the Greek and Roman; there are, however, many Coins wholly destitute of Legends, and a few on which Roman characters appear, which, with great propriety, may be ranked among them. The following will be the order under which we shall consider them:

Asia.	Lydia.	Africa.	Numidia and Mauritania.	Europe.	Etruria.
	Persia.		Carthage.		Spain.
	Judæa.				Gaul.
	Phœnicia.				Britain.

Lydia.—We commence with this Country, being that in which pieces of metal were first stamped with symbols, and used as the representatives of property. The nature of the Lydian Coinage has been already described; it consisted of rude lumps of metal, deeply indented on one of the sides, by the puncheon on which the metal was placed in order to receive the impression. The symbols consisted of figures of men and animals, rudely executed, and many of the Coins are formed of the metal *Electrum*, a compound of gold and silver: they are totally destitute of characters.

Plate II. Fig. 10.

Persia.—The Coins of this Country may be subdivided into three classes: the first extending from the reign of Darius to the Age of Alexander the Great; the second including a few which were struck from that Prince's reign until the full establishment of the Parthian Monarchy; and the last comprising the Coins of the Sassanidæ, successors to the Parthian Kings. I. The Coins of Darius, as we before remarked, may probably be referred to the Prince of the same name, sometimes called Astyages, a King of the Medes. On the reverses of these Coins, which are of gold, several rude indentations appear, without an approach to any regular form; the Coins are generally of an oval shape, and bear for their type an Archer, attired in the Persian costume, and holding in his hand a bow: the scarcity of these pieces, which at one period must have abounded, was caused by their being recoined by succeeding Princes. The symbol of the Archer gave rise to a *bon mot*, related by Plutarch in his *Life of Agesilaus;* when that Prince was forced to retire from an invasion of Persia by the largesses which Artaxerxes distributed among the enemies of Sparta, the Spartans spread a report that he was defeated by thirty thousand archers. II. The second class comprises a considerable number of Coins, but they lose much of their interest from the great uncertainty which exists as to their date; they are found in all the metals, and class with the Persian, the greater number of their devices being characteristic in that nation; as, however, several of them bear the type of a vessel, and are moreover inscribed with Phœnician characters, there are grounds for believing them to have been struck by Phœnician Cities dependent on Persia. From our present imperfect knowledge of this class of Coins, and the prospect that ere long this uncertainty will, in some measure, be removed, (for they are now engaging the attention of some learned antiquaries,) we shall not hazard any further conjectures on them, but proceed to the third division. III. The race of Princes denominated Sassanidæ, came into possession of Parthia A. D. 226. That Kingdom was not entirely destroyed until the Age of Mohammed, but the Coins do not extend later than the IVth century; these are nearly all of silver, and materially differ in their character from any of the preceding; the relief of the object is inconsiderable, and the Coins are extremely thin; they possess, however, a correspondent increase in their diameter. The Legends are inscribed in the Persian Tongue, and the portraits of the Princes are rendered curious by the singularity of the costume, which is depicted with great care. The symbols of the reverses are of two kinds; the first consists simply of an Altar burning, (bearing an allusion to the invisible Deity of the Persians,) there being at that period no Temples, but only an altar kept constantly burning in the open air: this worship afterwards declined into that of the Sun and Fire. The second device was also an altar, on one side of which appears the Monarch, and on the other the Chief of the Magi. The finest Coins of the series were struck when the Kingdom was in its greatest power, and are remarkable for their neatness and high finishing; but after the lapse of a century or more they greatly decline in execution.

Fig. 12

Judæa.—The Hebrew Coins were struck under the dominion of the Family of the Maccabees, and chiefly in the time of Simon, High Priest, 150 B. C. They are nearly all of copper, and invariably rude in their execution. The Legends are inscribed in Samaritan characters, and the symbols all of which are characteristic of the Nation, possess some variety; thus we have sprigs of plants, supposed to represent Aaron's rod, Temples, sacramental cups, censers, and tabernacles. Palm-branches and vine-leaves form also common devices.

Plate II. Fig. 13.

Phœnicia.—Distinguished as were the Phœnicians at an early period for their commerce, they do not appear to have instituted a Coinage prior to the Age of Alexander the Great; weight being employed in lieu of it among them as well as the Carthaginians. The Coins of the Greek Cities in Phœnicia are not comprehended in this class, which comprises only those either without Legends or bearing Phœnician characters. Among the devices we may notice the turretted head of Cybele, and figures of Astarte, the Sidonian Goddess; the most common reverse is a vessel, as the emblem of commerce; palm-trees (φοίνικες) are also common, indeed they were so abundant in Phœnicia as, according to some writers, to have given name to the Country. The greater number of the above Coins have been referred to the Cities Tyre and Sidon.

Numidia and *Mauritania.*—Juba I. was King of both Countries, he espoused the cause of Pompey, and being defeated, put a period to his existence; his son Juba II. was educated at the Court of Augustus, and received from that Emperor the territory of Numidia. The series of Coins commences with Juba I., of whom they are numerous in silver, but little variety prevails in the devices, a Temple forming the common reverse. Many copper Coins likewise are ascribed to this Prince, bu' they are unaccompanied by his portrait. The symbols on the Coins of Juba II. are sometimes Roman and sometimes Numidian; among the former we may notice curule-chairs, cornucopiæ, and the sign Capri-

Numismatics.

cornus, taken from Coins of his protector Augustus. The Numidian symbols are the lion, elephant, and palm-tree, which are all found on the Coins of that Prince. Juba II. espoused an Egyptian Princess, Cleopatra, of whom likewise there are Coins, bearing for their types the sistrum and lotus plant.

Carthage.—The Punic Coins are frequently confounded with the Phœnician; they were probably struck at the time of the Ist Punic War, during which the Nation had attained its greatest power. The Carthaginians trafficked for many Ages in gold and silver, but they do not appear to have instituted a Coinage prior to the above period: indeed, it is uncertain whether a Mint was ever established at Carthage, and whether the money may not have been the produce of her Colonies. Many of these were planted on the coasts of Spain and Sicily; a few of the Coins struck in the last-named Island are deservedly admired for the beauty of their workmanship, but they were the fabrication of Greek artists. The Legends, when they appear, are in Phœnician characters, and the types of the reverses usually three in number; the most common is a horse, of which a head only is sometimes represented, at other times the forepart of the animal, but more frequently the entire figure: the type is said to have originated from a tradition that a horse's head was discovered in digging the foundations of the City. A palm-tree is another very common device, and is most frequently introduced in connection with the preceding; the tree was common to the rivers of Northern Africa, and may, in the present instance, have served to denote that the Carthaginians were of Phœnician extraction. Lastly, we may notice the lion, a symbol common to Numidia; the types on the obverses of those struck in Sicily consisted of heads of Ceres, the chief Goddess of the Island.

Spain.—This Country was divided by the Romans into Bætica, Tarraconensis, and Lusitania, the present Portugal; Bætica was peopled long before the rest, being advantageously situated for commerce. The Colonies first planted here were by the Phœnicians, and of these Gades, now Cadiz, was the most considerable; the Greeks next established themselves on the coast, but none of their Colonies rose to eminence: the Carthaginians succeeded to the Greeks, planting Carthago-Nova, the present Carthagena, and numerous other Colonies. The Coins, as we should expect, partake of the character of those of the several Nations by whom the Country was inhabited, and appear inscribed with Phœnician, Greek, and Roman Legends; a few also are to be met with bearing Celtic characters, being struck by a Tribe who settled in the interior of the Peninsula near the Iberus, and were thence denominated *Celtiberi*. The symbols common to Coins of these Cities, consist of a horse, from that animal abounding in the Country; ears of barley, emblematical of the fertility of the soil; (the South-Eastern portion;) an olive-branch, as olives were cultivated there in great abundance; and lastly, fish, appearing on Coins of the seaport towns. A few heads, likewise, appear on the Coins of Cities removed from the coast, and are chiefly those of Barbaric Chiefs and of Hercules: that Deity was especially honoured in Spain, it being the Country reported to have been traversed by the Hero, and that in which one of his Columns was planted.

Gaul.—The early Coins of this region are scarcely worthy of notice, indeed, little intercourse subsisted between it and the Southern Countries, prior to its reduction by Julius Cæsar. This Country became known to the Greeks by the establishment of the Colony Massilia, (now Marseilles,) which also gave rise to the formation of numerous Greek settlements along the coast: the Coins of these Cities can scarcely bear the name of Gallic, and have, in consequence, been classed with those of Greece. Gold, it would appear, was found in great abundance in many parts of the Country, and formed a chief article of commerce; the early Coins, struck about half a century or more before the Christian Era, are common in this metal, being in appearance rude lumps of gold, with types of such Barbarian workmanship as to be frequently unintelligible. The devices consist of heads of Chiefs, with their names inscribed in Roman characters; and of horsemen, or simply a horse running: the Gauls were noted for their skill in training these animals, which, moreover, abounded in the Country.

Coins of Barbarian Nations.

Britain.—Julius Cæsar, in his *Commentaries*, when noticing the manners and customs of the inhabitants of Britain, has stated, that they made use of iron rings of a prescribed weight for money, and that copper was coined as a superior metal:* their knowledge of the Art was probably derived from their intercourse with the Northern coasts of Gaul, as we find the Coins of both Countries frequently resemble each other. The first stamping of money in our Island is conjectured to have taken place at a period subsequent to the second invasion of Julius Cæsar;† and we afterwards meet with the Coins of a few Generals, to which succeed those of Cunobelin. On the Coins of that Prince much has been said and written; we do not, however, purpose entering upon the discussion, even if our limits permitted, since little information of a satisfactory nature is to be gained. Cunobelin reigned over a considerable extent of country lying to the North of the Thames, and inhabited by the *Trinobantes;* two Cities are stated as having been the Capitals of his vast Kingdom, Verulam, (St. Alban's,) the most ancient, and Camulodunum. (Colchester.) The reign of Cunobelin extended to the Age of Caligula. His Coins abound in all the metals, and are so diversified in their general character and types that they can with difficulty be ascribed to the reign of a single Prince. The portraits on the obverses differ materially from each other, and many of the devices are obviously taken from Roman Coins.

The ancient Coinage of Britain terminated with this Prince, for in the reign of Claudius, the Island was brought under complete subjection, and an edict passed, ordaining that all the Coins struck in it should be impressed with the effigy, name, &c. of the Emperor; whereupon Roman Mints were established in the chief Cities, and the Coins were numbered among those of the Empire. A horse and ears of barley form the most common devices on the Coins of Cunobelin, and for the Legends, besides the name of the Prince, we meet with the characters VER and CAMU, being the commencement of the names of the ancient Cities above specified. Plate II. Fig. 14.

* *De Bello Gallico*, v. 12.

† Ruding, *Annals of the Coinage of Britain, &c.*

Numismatics.

PART II.—Modern Coins.

Sect. I.—*Character of Modern Coins.*

Coins are rendered interesting chiefly from their devices, and, in proportion as these are diversified, so will they prove valuable documents to the Historian; the Legends next deserve notice, and we then proceed to examine their fabric, proportionate value, &c. First, then, as regards the symbols; these we have shown are of exceeding great variety both on the Grecian and Roman Coins; our limits have only admitted of a selection from among them, but there are many others equally worthy attention. They afford a considerable insight into the Heathen Mythology, portraying the Deities chiefly worshipped throughout the Grecian States, and the personifications in use with the Romans; they, also, not unfrequently, acquaint us with the manners and customs of the Nations to which they belong; the costume is carefully depicted, and a numerous and very complete series of portraits is preserved. If we now turn our attention to Modern Coins, the devices affixed to them, from the extinction of the Western Empire until the XIIth century, will be found to consist in little more than a cross; a device, it is true, diversified and ornamented after every possible manner, but from which no characteristic information can be acquired: it was a type adopted by the Eastern Emperors on their Coins to denote their conversion to Christianity, and afterwards used for a similar purpose by the Gothic Sovereigns. The Arms of a Country were introduced in conjunction with the cross in the XIIth century, when the latter symbol gradually fell into disuse; and the remaining devices, which from time to time appear, are, with but few exceptions, little connected with the varying History of Nations. The brevity and comprehensiveness of the Legends on Ancient Coins is well deserving of attention; no more words being introduced than are absolutely requisite to convey the intended meaning, while we are frequently surprised to find how much information is embodied in the few characters employed: diffuseness, on the other hand, is a leading defect with Modern Medals, if not with Coins; a confusion often existing between the Legend and the device, and a multitude of characters being employed to express a thought comparatively trifling. The Legends on the Coins of the Middle Ages are distinguished by the insertion of the names of the Mint-masters in connection with those of the Cities in which the Mints were established; for it will be proper to observe that all the towns of note, throughout the European Kingdoms, had their respective Mints; (in England they existed to the number of fifty or more;) over each of these a Mint-master or superintendent was appointed, who being responsible for the purity of the metal, &c., was under the necessity of inserting his name in the Legend.

Symbols on the Coins of the Middle Ages.

Legends.

In this division of our subject, we shall no longer take into consideration the proportionate value of the Coins; (those of our own Country excepted;) indeed, any attempt of the kind would be attended with considerable labour, and all interest would be destroyed, from the impracticability of tracing the various changes they underwent. Throughout the Middle Ages the silver Penny was the only Coin of importance, being struck upon the model of the Roman *Denarius;* very little gold was employed in the mintage, and the introduction of copper is of extremely recent date.

Metals employed.

The fabric of Modern Coins is as little deserving of notice as the other qualities we have named respecting them; and, omitting those of the last few centuries, they must be acknowledged to be greatly inferior in their workmanship to the Coins of the two great repositories of ancient Art, Greece and Rome.

Modern Coins prior to Charlemagne.

Portraits appear on Modern as well as Ancient Coins; but such was the state to which the Arts were reduced in the Dark Ages, that frequently no discrimination of character is apparent in the representations of the Princes handed down to us. The relief of the Coins is also inconsiderable, and the pieces are extremely thin; a peculiarity by no means consequent on the practice of employment of the hammer to obtain the impression, since a similar method was adopted by the Greeks and Romans, while their Coins are of quite an opposite character. The preceding remarks relate chiefly to Coins struck prior to the XVth century.

Workmanship of the Coins of the Dark Ages.

The Coins of the modern Asiatic Kingdoms are numerous, but as they materially differ from those of Europe, we think it desirable to consider them apart; they will, in consequence, close the present section.

Modern Coins of Asia.

It is difficult, if not impossible, to fix upon any precise era as forming the boundary of Ancient and Modern History; one period there must be in which the events will seem equally entitled to fall under either division. Of the several epochs named by Historians as terminating the annals of the Ancient World, there are two more especially deserving attention—the extinction of the Western Empire 476 A. D., and the Age of Charlemagne, crowned Emperor of Rome 800 A. D. We therefore purpose, in the first place, to take a short survey of the Coinage of the European Countries from the Vth century of the Christian Era to the death of Charlemagne.

Eras assigned for the commencement of Modern Coins.

Spain.—The Coins commence in this Country with Liuva, Prince of the Visigoths, A. D. 576, and are nearly complete of his successors, down to Roderic the Great, when the Gothic Monarchy became extinct in Spain. These Coins are chiefly in gold, and are found of two sizes, being struck upon the model of the *Trientes* and *Semisses* of the Lower Empire. The symbols consist of the heads of the Princes, executed in a most wretched style, and a variety of crosses; the latter device was taken from the Coins of the Lower Empire, and affixed in order to denote the conversion of the Princes to Christianity: in a few instances, portraits appear on both sides of the Coins. The characters on the Coins struck in the Dark Ages, and especially at this early period, are so mishapen, differ in many instances so materially from the present mode of representation, and are so erroneously placed, that the inspection of a considerable number is requisite before the Legends can be deciphered with facility. The reverses bearing the crosses above alluded to, have for their Legends the names of the Cities in which they were struck, followed generally by the word PIVS; an epithet applied in common to the Byzantine Emperors, and in this instance to be regarded as a continuation of the Legend on the obverse. The Cities whose names appear are Ispali, (Seville,) Emerita, (Merida,) Corduba, (Cordova,) Cæsarea Augusta, (Saragossa,) Toledo, and a few others in Andalusia and the Southern districts.

France.—The first series is that of the Merovingian Kings, and commences with Clovis 490 A. D.; this race became extinct with Pepin, the grandfather of Charlemagne. These Coins are of gold, they were struck

Numismatics.

upon the model of the Roman Coins, and in many respects resemble the preceding. The title *Dominus Noster*, expressed by the initials D. N., is frequently prefixed to the names of these Princes, as upon Roman Coins; a globe is also commonly annexed to the cross on the reverse, and enclosed within a circle. Among the chief towns, the names of which are inscribed in the Legends, we may notice Parisiis, (Paris,) Aurelian, (Orleans,) Colonia, (Cologne,) &c.; they are usually preceded by the characters CIV, abbreviated for *Civitas*.

Italy.—The Coins of this Country which we last described, were the series of Emperors closing with the deposition of Romulus Augustulus by the Heruli, 476 A. D. The Ostrgooths shortly after acquired the dominion of Italy; their Coins are preserved down to Teias, who was vanquished by Justinian, but they are of indifferent workmanship, and in many respects resemble the Coins of the late Emperors. On one of the sides, the name of the Prince, expressed by a monogram or at full length, is inserted, and enclosed by a laurel wreath; the other side bears a portrait of the reigning Emperor at Constantinople, to whom allegiance was acknowledged. Upon Italy being again annexed to the Empire, Viceroys were appointed by the Eastern Emperors, who fixed their seat at Ravenna, and issued Coins; they have, however, nothing remarkable to distinguish them. The Country afterwards fell under the power of the Lombards, and notwithstanding they maintained possession of it for nearly two centuries, no Coins of their Monarchs appear, those of the Eastern Empire probably sufficing.

Britain.—Roman Coins were current in our Island until the arrival of the Saxons and the formation of the Heptarchy: of the seven Kingdoms of which it was constituted, the Coins of five remain; namely, Kent, East Anglia, West Saxony, or Wessex, Mercia, and Northumbria. The Archbishops of York and Canterbury, likewise, exercised the privilege of Coining, and many of their pieces remain. The early Saxon Coins were the *Sceatta* and *Styca*; this last was of copper, very small in size, and its circulation confined to the Kingdom of Northumbria. The following is the order of the Kingdoms, and the names of the Princes with whom the Coins commence. Kent with Ethelbert, 561 A. D.; Northumbria, Ecgfrith, 670 A. D.; East Angles, Beonna, 690 A. D.; Mercia, Eadhald, 716 A. D.; and West Saxony, or Wessex, Beorhtric, 754 A. D. The *Sceattæ* were the earliest productions of the Mint, and are distinguished from the Penny by their being of inferior weight and dimensions. They were struck in the Pagan times, the crosses seldom appearing; birds formed the common symbols; we meet also with representations of Romulus and Remus, and sundry marks, probably designed for letters. Portraits of the Monarchs were subsequently introduced, when the device of the cross also appears on the reverses. The *Stycæ* are remarkable for being the only copper Coins struck in England before the reign of Elizabeth; they bear the type of a cross, contained within a circle, and the names of the Princes, Mint-masters, and chief Cities. Saxon Pennies appeared in the Kingdom of Kent 750 A. D., and are found of nearly all the Princes from that period; they offer a great variety in their types, the diversity being occasioned chiefly by the manner in which the characters are disposed; they are sometimes disposed in two or three rows, separated by transverse lines; at other times they fall within the compartments made by the cross, and the variety of forms assumed by this type are not without some degree of elegance. The title REX is annexed to the names of the Princes, and in the instances of Egbert, and a few other Kings, SAXONVM is added; the names of the Mint-masters are commonly succeeded by those of the towns in which the pieces were struck: the most considerable of which, at that period, were Canterbury, York, Durham, Bristol, Dover, and Leicester.

Modern European Coins

The whole of the North-Eastern parts of Europe were then possessed by wandering Tribes of Barbarians; the Coins of the Eastern Empire differ from the Roman Coins last mentioned only in their inferior workmanship, and in the poverty of the devices. A considerable number of these are of gold, that metal being common at Constantinople at the decline of the Empire; a very complete series of Coins of the Emperors may indeed be formed in this metal, while that in silver and copper is frequently defective.

Coins of the Eastern Empire.

Having taken this hasty sketch of Modern Coins down to the Age of Charlemagne, we shall proceed in the same order with the remaining series.

Spain.—To the series of Coins of the Gothic Princes succeed those of the Arabians or Saracens, who possessed themselves of all the powerful Cities in the South, and after a short time fixed their seat of Empire at Cordova: their Coins will be noticed with those of the Asiatic Princes. At the close of the Xth century the Caliphat was split into a number of independent States, as Toledo, Seville, Murcia, Saragossa, &c., at which time the Coins of the Christian States, which gradually rose into power, commence. No Work having been published on the modern Spanish Coins, we are unable to offer any account of them.

Modern Coins from the Age of Charlemagne.

France.—The French Monarchy is distinguished by three races of Princes: the first of these was the Merovingian, extending to Pepin, the Coins of which have been already described; to this succeeds the race of the Carlovingian Kings, so named from the Emperor Charlemagne. Coins of this race are to be found struck in all the Cities of importance throughout France, and strongly evince the state of barbarism which prevailed: the Kingdom had rapidly declined since the time of Clovis, it rose into power with Charlemagne, but fell to pieces under his weak posterity. Portraits seldom, if ever, appear on this series, which consists chiefly of silver Pennies; and in rudeness of fabric they exceed all other Coins of the same period. The names of the first two Princes occupy one side of their Coins, in separate lines, and in characters of the rudest class; the field of the reverse is occupied by the initials R. F. (*Rex Francorum.*) Coins of Charlemagne also occur, struck at Rome, and superior in fabric to the above; the letters contained in the name of the City are placed at each extremity of a cross in the field of the Coin, and encircled by the Legend CAROLVS IP: the monogram expresses the title Imperator.

Coins of Charlemagne.

At the close of the Xth century, Hugh Capet seized upon the crown, and commenced the third, or Capetian race. The Coins are now of improved execution, but from the sameness and poverty of the devices for some centuries, they merit little attention. The types consist almost solely of crosses, and the badge of France, the fleur-de-lis; this last device sometimes occupies the entire field; it is also commonly affixed to each of the

Numismatics.

extremities of the cross, and introduced upon every possible occasion. In the early part of the XIIIth century, the *Gros*, or Great-piece, (whence our *Groat*,) came into circulation, and was so named from its size when compared with the Penny; soon after, pieces of several denominations were issued, as the *Liard*, *Maille*, *Obole*, *Blanc*, *Teston*, &c.; and about A. D. 1300, Coins of gold were struck, appearing in the form of the *Florin*. The gold Coins are very numerous; those of frequent occurrence are the *Chaise*, *Lion*, and *Ecu à la Couronne:* each of them was named after the devices it bore. Our limits will not permit us to notice at greater length the Coinage of this Nation, as we are anxious to reserve as much space as possible for that of our own Country.

Germany.—The Coinage of this Country consists of that of many independent States, and commenced soon after the Age of Charlemagne; no Work of which we are aware has as yet appeared upon the subject. The series of the Emperors is believed to be complete, and the Coins of the powerful Cities seated on the Rhine are very numerous.

Italy.—We shall take in their order the Coins of each great division of Italy, *viz.* Lombardy, the States of the Church, and Naples, in each of which they long consisted only of silver Pennies, bearing the type of a cross. Among the independent Lombard Cities of which Coins are preserved, we may mention Milan, Mantua, Pavia, Venice, Lucca, Florence, and Genoa. Without dwelling upon each separately, we shall briefly remark on their general character; the States which struck Coins soon after the Age of Charlemagne, inscribed them with the names of the Emperor of the West on the reverse, to whom nominally they owed allegiance; the name of the City appears crossing the field of the Coin. The devices differ from those on the other European Coins, by representations of the

Lombardy.

patron Saints; thus we have St. Ambrose for Milan, St. Mark for Venice, and on the Coins of Florence St. John the Baptist; the Coins of the City of Mantua, the birth-place of Virgil, bear the name of that Poet for the Legend. The Florins, so named from being struck at Florence in the middle of the XIIIth century, are remarkable for being the first gold issued in Europe after the extinction of the Western Empire; (that of France and Spain, during the Gothic Monarchy, excepted;) they bear for their device the flower of the lily, and were immediately imitated by other European Powers. They appeared in England in the reign of Edward III.

States of the Church.

In the Papal dominions, Hadrian I. was the earliest Pontiff who obtained leave from Charlemagne to coin money, and some of his pieces are preserved; few portraits are found until a late period, the names of the Popes and of the Emperors of the West constituting the Legends: they are also sometimes expressed by monograms, placed in the field of the Coin. On one of the sides we read for the Legend SCS (Sanctus) PETRVS, and the name of the city ROMA or the word PIVS in the centre; the letters forming these words are placed at the extremities of a cross, after the manner noticed above, in the Coins of Charlemagne struck at Rome. Such was the character of the Papal Coins until the close of the XIVth century, when a great change appears in the devices; these consisting of figures of the Popes, seated, in their robes, with the symbols of the cross-keys, surmounted by a mitre, for the reverse.

The territory of Naples was possessed, in the Age of Charlemagne, by the powerful Dukes of Beneventum, tributary to that Prince; a few of the Coins struck by them are to be met with in Cabinets, but they possess little interest. At the close of the IXth century, the Saracens from Africa rendered themselves masters of Sicily and Naples, of which they retained possession until expelled by the Normans. The Normans, the most distinguished of the Crusaders, commenced their sovereignty with Roger the Great, and in the XIIth century, being dispossessed of the Country, it was annexed to the Empire. A series of Coins exists of the Norman Princes; they are of copper, small in size, and bear the names of the Princes in Arabian characters: they are found in great numbers, but are generally uninteresting.

Modern Coins from Charlemagne.

Naples.

Britain.—The Coins of the British Princes are very complete, from the first chief Monarch Egbert until the Conquest, and they nearly resemble the last Coins which we noticed of this Country. During this period, the silver Penny continued the sole Coin, the cross the ordinary type, and the names of the Monneyers, or Mint-masters, and of the Towns forming the Legends. On the Coins of Alfred are rude attempts at his portrait; the reverses of a few of them are curious; those which were struck at Loudon have frequently for the device a monogram of that City. Under the reign of Canute, the Mints were more numerous than at any former or subsequent period; his head appears on the obverse of his Coins, crowned, and enclosed by a circle, constituted of four arches; the following is the Legend, ✣ CNVT REX ANGLORVM. The cross still forms the type of the reverses, and some idea may be formed of the number of modifications of which it is susceptible, when we mention that on the Coins of Edward the Confessor only no fewer than 500 varieties occur.

Coins of Alfred and Canute.

Denmark, Sweden, Russia, &c.—These Countries, forming the whole of the North-Eastern part of Europe, were parted off in numerous Duchies long before and after Charlemagne. Bohemia and Poland also were governed by Dukes from the Xth century, and Coins of both Countries remain. As few of these Nations are distinguished in History until a late period, the Coinage is generally of recent date; it was formed upon the model of that of the other European States, and therefore will not need a particular account. Crosses were sometimes placed on both sides of the Coins, and frequently the initial of the name of the Prince occupies the area of the obverse. About the XIIIth century the Arms of the Countries were adopted for the symbols, at which time also pieces of several denominations were struck.

Eastern Empire.—Coins are preserved of all the Princes down to the extinction of the Empire, but towards its close, the execution is of the very worst class. The devices, as we might suppose, are more varied in this series of Coins than in that of any other Country; among them we observe the cross, figures of Victory, representations of our Saviour, and of the Virgin and Child; the reverses are frequently occupied by inscriptions.

Coins of the Asiatic Kingdoms

The most remarkable difference between Asiatic and European Coins consists in both the obverse and reverse being occupied by characters. The practice of placing inscriptions on the Coins, took its rise from the precept of Mohammed forbidding the representation of any living creature.

Arabia.—The Arabian Caliphs are distinguished into

Numismatics.

two races; the first of these, the Ommiades, succeeded the Persian Kings, the Sassanidæ, and fixed their seat at Damascus; the second, the Abassidæ, resided at Bagdat. The Coins commence with the third or fourth Prince of the first race, and are brought down to the extinction of the Caliphat; the characters are in the Arabic Tongue, and the symbols, if the sentences may be so termed, are of three kinds: the first, a passage from the Koran, declaring the Unity of the Godhead; the second declaring the Divine mission of the Prophet; and the last, consisting of parts of the two preceding. These sentences are variously disposed on the Coins, but generally the first two occupy the area on one of the sides, while round, and constituting the Legend, the name of the city (Damascus or Bagdat) and the year in which the piece was struck are inserted. The other side is chiefly occupied by the names and titles of the Caliph. The Coins of the Arabian Caliphs who reigned in Spain partake of the same character as the above, and were struck either at Cordova or Seville.

Asia Minor.—The Turks were the first Nation of importance who acquired an increase of dominion upon the decline of the Caliphat; they are distinguished into three powerful races: one of these resided at Ispahan, holding in tutelage the Caliphs of Bagdat; a second fixed themselves in the South-Eastern parts of Persia; and the third and most powerful, was a Tribe denominated the Seljuk Turks, who established their seat at Iconium, in Asia Minor, and subsequently removed to Nicæa, in Bithynia. Very few Coins remain of the former two races; of the third, however, there are many extant; on these the characters are disposed in the form of a square, and the passages from the Koran are omitted: the Legends consist of the names of the Prince, the places in which the Coins were struck, and the year. A symbol common to the Coins of one of the Princes is a representation of the Sun in the constellation Leo, which is remarkable as it constitutes the present Arms of Persia. The prevalence of Judicial Astrology at the period may have occasioned the introduction of the device, the Sign being probably that under which the Sultan was born: the Legend accompanying this type is the name of the Arabian Caliph resident at Bagdat, to whom these Princes nominally owed allegiance.

Egypt.—While the Saracens were declining in power in the East, the Egyptians rendered themselves independent, and were governed by a race of Princes, denominated the Fatimite Caliphs, until the conquest of the Country and its incorporation with Syria by the great Saladin. On the Coins of these Princes the characters are disposed in a triple range of concentric circles, and the spaces thus formed are occupied by the second and third symbols, as on Arabian Coins, a passage in praise of Ali, the successor of Mohammed, the titles of the Caliph, a sentence containing an exhortation to a belief in the Unity of the Godhead, the name of the Prince, the City in which the Coin was struck, and the year. The above Coins are of gold; a few exist of the Ayubite dynasty, also founded by Saladin.

The irruption of the Mogul Tartars in the XIIth century subverted the Caliphat of Bagdat, the Ayubite dynasty, and partially that of the Seljuk Turks. Of the Sufi, or Persian race of Kings, a series of Coins remains, extending down to a late period.

India.—The series most complete are that of the Sultans of Hindùstan, who fixed their seat at Delhi, and superseded the ancient Hindù Government, and also that of the Princes appointed by them, who reigned for two centuries at Bengal.

English Coinage.

Turkey.—The Ottoman Turks issued Coins; but omitting those of the last century, they are rude and uninteresting, generally of a very small size, and contain only the names of the Princes, and the dates.

China.—A few of the Coins of this remarkable Nation may be traced as far back as the commencement of the VIIIth century; they are of copper, and are found but of two or three sizes. A perforation appears in the centre to facilitate stringing them, and until the XVIIth century, no device or inscription is seen on the reverses; on the other side various Chinese characters surround the square aperture, containing the titles of the Emperor, the place of Mintage, and words implying current Coin.

Sect. II.—English Coinage.

Perfection of the English series.

The Modern Coins of England are not of a kind calculated to throw much light upon its History, but they are entitled to distinction as being the most complete modern series extant. France ranks after England in the perfection of its series; it is, however, deficient in that of many Kings, whereas with us the Coins but of two Princes since the Conquest are wanting, Richard I. and John; of the former, however, some exist struck in France, and of the latter some in Ireland.

The Coins struck prior to the reign of Charles II. are denominated "hammered money," from their devices being impressed by blows of a hammer; and this simple form during the early period of our History will account for the great number of Mints which existed. The process of Coining with the hammer was as follows: the metal after being melted, and the requisite alloy given for the purpose of hardening it, was beaten on anvils into large square plates down to the required thickness; these plates were next cut into narrow slips, and afterwards into small squares, when the operation of shaping commenced; this consisted in removing the corners with scissors, and by means of a hammer approximating them to a circular form. The pieces were afterwards weighed, those which were found to exceed the standard were filed, and in this state they obtained the appellation of *planchets*, and were ready to receive the impression. The dies were engraved upon two punchcons, one of which was stationary and received the planchet, while the other being held above it, the impression was effected sometimes at a single blow of the hammer.

Early method of Coining

Recourse was first had to the power of the screw for the purposes of Coining, about the middle of the XVIth century, and it was introduced by Antoine Brucher during the reign of Henry II. of France. It was used in that Kingdom for about thirty years, but from the expense attending it, compared with the former method, it was laid aside. The screw-press was not again resorted to until the year 1645, when by an edict of Louis XIV. its use was finally established: its revival at that period may be ascribed to the great number of Medals struck under that Prince's reign; for although it had been discontinued for the current Coin, it had always been resorted to for the Medals. The mill, or screw-press was introduced into England by a Frenchman, in the reign of Elizabeth, and employed in our

Introduction of the mill.

Numismatics.

Mint for about ten years; at a subsequent period, Briot, an ingenious French artist, unable to prevail upon his Government to revive the use of it, came to England, and was favourably received. His machine was occasionally employed during the Commonwealth, but not for a continuance until the reign of Charles II. Briot, appointed chief engraver to the Mint, was succeeded in that office by Thomas Simon, an artist of great talent and ingenuity, who has left many admirable specimens of die-engraving. The operations of the Mint were now conducted on a very superior scale. The devices were, for the first time, engraved in relief on the puncheons, and stamped upon pieces of metal prepared for the purpose; these were termed *matrices*, and, in fact, constituted the dies. This method was adopted to counteract the delays occasioned by the breaking of the dies, owing to the pressure they received; as by means of the puncheon they could be renewed at pleasure. The metal after being melted was cast into bars of two or three inches in breadth, and the thin plates were obtained by the bars passing through the *laminating* or *flattening mill*. This machine consists of a pair of iron rollers, of considerable magnitude, which are kept revolving; as the bars pass through these, the metal becomes expanded in every direction, and by a succession of these machines, varying in their size, it is reduced to the required thickness. The plates of metal furnished by this operation are next taken to the *cutting-out press*; the chief feature in this machine is a species of steel trepan, adjusted to the dimensions of the Coins, by which thus the planchets are formed. After the pieces of metal are cleaned and weighed, nothing further remains but to affix the impression. In order to counteract the fraudulent practice of filing and clipping, Thomas Simon introduced letters on the edges of the large silver Coins, as the Crown and Half-crown, as may be seen to this day on the former piece. The instrument by which this was effected is very ingenious in its construction, and so simple in its operation as to throw off the Coins at the rate of sixty and seventy per minute. Graining succeeded to lettering the edges, and is at the present day effected at the same instant with the impression; the inner surface of the collar which receives the planchet being prepared for the purpose. The advantages possessed by the screw-press consist in the increase of power; so that the impression is obtained at a single blow, and much time consequently saved, also, as one firm and uniform pressure is given to the die, the most delicate strokes can be brought out: one defect yet remained, that of the machine being put in motion by human strength, and this in later years has been remedied by the substitution of steam.

Lettering on the edges.

The silver Coinage of England.

We commence with the silver Coinage of England, as being the most ancient; and for the sake of perspicuity we shall, for each metal, give the names of those Princes only under whose reigns any new piece was introduced, or any material alteration brought about in that which was then current.

William I.—The *Silver Penny* was a Coin well known throughout the Middle Ages, during which, as we have before stated, it was (with one or two exceptions) the sole piece. These Coins were struck upon the model of the Roman *Denarius*, and they now constitute the most lengthened sequence, ancient or modern, known; they commence with Egbert, and having been struck in the last reign, the series extends for upwards of a thousand years.

English Coinage.

The Coins of William I. or II., for they cannot be distinguished, resemble in their devices and fabric those immediately preceding the Conquest; thus they offer rude attempts at the portraits of the Kings for the types of the obverse, accompanied by the Legend PILLELM REX, and on the reverse an almost endless variety of crosses, encircled by the names of the Mint-masters and chief towns. Plate II. Fig. 15

Henry III.—The device of the Penny was slightly varied during this reign; hitherto the portrait of the Monarch had been commonly represented in profile, for which the full face was now substituted. The crosses on the reverse had, as we have before remarked, been greatly diversified, and were contained within a circle; they were now formed of double lines extending to the margin of the Coin, also in each angle of the cross pellets were inserted, but whether for any express object, or merely dictated by fancy, is unknown. The device of the cross, terminating in the circumference of the Coin, and dividing its area into four equal parts, prevailed until the reign of Charles II. On a few Coins of this Prince the Roman numerals III. are placed after the name. Fig. 17.

Edward I.—The Coins introduced during this reign were the *Halfpenny* and *Farthing*, precisely resembling the Penny in their devices; the former were coined down to the reign of Charles I., and the Farthings so late as that of Mary, though scarcely of one quarter their original size, from the decreasing value of silver. The divisions on the surface of the Pennies formed by the arms of the cross, occasioned their being separated into halves and quarters, and in this state they were circulated in common with the new pieces. In Ireland there were Half-pennies struck as early as the reign of King John; they represent, as do also the Pennies, the head of the Prince enclosed within a triangle.

Edward III.—The *Groat* now made its appearance, taking its name from the French *Gros*, a large piece, and was valued at four Silver Pennies; the *Half-groat* was also struck. The Legends of this new piece differ from those on the preceding Coins; the obverse exhibits a full face of the Monarch crowned and enclosed by a circle formed of nine arches, the points of union terminating in the fleur-de-lis. The reverse bears the name of the City, (commonly that of London,) those of the Mint-masters being discontinued under Edward I.; around the margin is the sentence POSVI DEUM ADJVTOREM MEVM, inscribed on Coins so late as the reign of Edward VI. Fig. 21.

Henry VII.—It was under this reign that the *Testoon* or *Shilling*, valued at twelve pence, was first struck: the former appellation was taken from a French Coin, so named from its bearing the head (*teste*) of the Monarch. The word Tester is to this day employed in the North of England to designate the Shilling. The denomination Shilling is of uncertain origin; it was employed as a division of money in the period of the Saxon Heptarchy. The Royal arms were introduced on Coins for the first time in this reign, the cross dividing the escutcheon into four compartments. The obverse of the Shilling represented the head of the King in profile, crowned, and encircled by the Legend HENRIC. VII. DI. GRA. REX. ANGL. Z. H. (*et Hiberniæ*:) this is the first instance that occurs since the reign of Henry III. of Roman numerals appearing on English Coins, and their omission in the intervening reigns, particularly those of the Edwards, frequently renders it impossible to ascertain to which of the Princes they belong. Heraldic bearings first introduced. Fig. 20.

Numismatics.

Henry VIII.—On the Farthings of Henry VIII. a portcullis appears, to distinguish them from the Halfpenny, as from their diminutive size they were frequently confounded: the Shilling also of this Prince differs from that of his predecessor, by the emblem of a double rose surmounted by a crown. Our Kings had up to this period styled themselves, on their Coins, "Lords of Ireland;" Henry VIII. first assumed the title of King of that Country.

Edward VI.—Several important additions were made to the silver Coinage in the reign of this Prince, the most considerable of which were the *Crown* and *Half-crown*, named after some Coins struck on the Continent, which bore for their device a crown. The type on the obverse of the Crown piece represented the King on horseback completely armed, and the horse richly caparisoned; the Legends and type of the reverse resembled those of the Shilling. The Half-crown also bore the type of the King on horseback,—a symbol which was retained so late as the reign of Charles I., when portraits of the Sovereigns were substituted. The remaining new Coins struck in this reign were the *Sixpence* and *Threepence*, on each of which the devices of the Shilling were repeated. The Roman numeral XII. and VI. were also impressed on the obverses to denote their value. In this reign the ordinary escutcheon divided by the cross, gave way for one of an oval form, richly garnished, and bearing the quartered arms of France and England; the device was accompanied by the Legend TIMOR DOMINI FONS EST VITÆ.

Plate II. Fig. 18.

Elizabeth.—Two minor divisions of the silver Money were introduced by this Queen; namely, *Three-halfpenny* and *Three-farthing* pieces: as, however, they could be dispensed with, and tended only to breed a confusion with the smaller denominations, they soon disappeared.

Charles I.—A few silver Coins were struck in this reign, and denominated, from their value, *Twenty-shilling* and *Ten-shilling* pieces; they were, however, soon called in, probably being inconvenient from their great size: the devices on these new pieces nearly resembled those of the Crown.

Commonwealth.—A new type appears on the Crown of the Commonwealth and of Cromwell, accompanied by an English Legend; they are generally of indifferent execution, and represent on one side St. George's cross in a shield between a palm and a laurel branch, and for the Legend, THE COMMONWEALTH OF ENGLAND. On the other side the above cross is repeated, accompanied by a second shield containing the harp; the device being designed to express the union of England and Ireland: the sentence GOD WITH US forms the Legend.

Charles II.—The devices on the Crown of the Commonwealth were discontinued at the Restoration, and a new variety introduced consisting of four escutcheons with the arms of England, France, and Ireland: this type finally gave place to that of St. George. The Legend DECUS ET TUTAMEN, on the edge, was introduced during this reign.

Soon after the reign of Elizabeth, the escutcheon was affixed on the reverses of all the small Coins from the Groat downwards, and subsequently gave way to the admission of ciphers. The Pennies of Charles II. bear the initial of his name; two of them appear with the Twopenny piece, three with the Threepenny, and so on. The Groats of this Prince contain the four ciphers, surmounted by crowns, and the badges of the respective Countries, the rose, fleur de lis, harp, and thistle inserted between them. On the small silver Coins of James II., Roman numerals express the value, and with William III. the modern figures.

English Coinage.

Henry III.—A Coinage of gold was instituted in the reign of this Prince, but from the few pieces which were struck, the introduction of the metal in our Mint is commonly referred by antiquaries to the reign of Edward III. The Coins of Henry III., alluded to above, were denominated *Gold Pennies;* probably from their accordance in size with silver Coins of that name, which they also perfectly resembled in the device of the reverse. But two of these Coins are at present known to exist. Their current value was 1*s.* 8*d.*, but this forming no part of the larger denominations, they were soon called in: the want, indeed, of a gold Coinage could have been but little felt at the time, as a term of ninety years elapsed before the metal was again resorted to.

The gold Coinage of England.

Edward III.—The reign of this Prince forms a remarkable era in the History of our money. We noticed the Groat, in the silver Coinage, as having come into circulation with this Monarch, and we shall presently have to speak of the introduction of the *Noble*, one of the most remarkable of our gold Coins: our first attention is, however, due to the Florin. The *Florin* was first coined in England in the year 1344, and was accompanied by its *Half* and *Quarter*. This piece was issued in imitation of the gold Coins struck at Florence; none have yet been found, but two or three Quarter-florins are preserved in Cabinets, and the Half-florin was discovered a few years since. The symbol on the obverse is a lion, two of which it is said were affixed to the Florin. Crosses richly ornamented form the types of the reverses. The Florin was ordered to pass for 6*s.*, but from being overrated in proportion to the silver Coins, it ceased in a short time to be struck. The *Noble* was issued, together with its *Half* and *Quarter*, in the same year as the Florin, and is said to have taken its name from the purity or nobility of the metal: it was valued at 6*s.* 8*d.*, and its parts in proportion. The obverse of this Coin represents the King standing in a vessel, asserting the dominion of the sea; he bears in his right hand a sword, and in his left a shield, containing the quartered arms of France and England. This symbol is conceived to have been impressed on the Coins to commemorate a victory obtained by Edward over the French fleet. The Legend of the obverse is taken from the silver Coins. The reverse represents a cross richly ornamented; and in a small compartment in the centre, is the initial of the Prince's name. Each of the angular spaces formed by the cross is occupied by a lion surmounted by a crown, and the arms of the cross are terminated by fleurs-de-lis. The whole is contained within a circle formed of eight arches, with trefoils in the outer angles, and encompassed by the Legend IHESVS AVTEM TRANSIENS PER MEDIVM ILLORVM IBAT. This sentence, from the Gospel of St. Matthew, was worn as a charm or amulet, and considered as a preservative against the perils of war. The Noble ceased in the reign of Henry VIII. The reverses of those of Henry IV. differed from the preceding in bearing the type of an expanded rose as the badge of the House of Lancaster: this emblem gave rise to their being denominated *Rose-nobles*.

Plate II. Fig. 16.

Henry VI.—The Noble was now raised to the value of 8*s.* 4*d.* and a new Coin introduced, namely, the

Numismatics.

Plate II. Fig. 22.

Angel, valued at 6*s.* 8*d.*, the former value of the Noble, and hence it was denominated the *Noble Angel*. This new Coin received the appellation of Angel from the type of the obverse representing the Archangel St. Michael, with his left foot placed upon the dragon, which he pierces through the mouth with a spear. The reverse bears the type of a ship, partially resembling that of the Noble; a cross is substituted for the mast, and a shield, with the arms as before, is placed on the side of the vessel. The Legend is as follows, PER CRVCEM TVAM SALVA NOS XPE REDEMPT. The Angel extended to the reign of Charles I.; and shortly after its appearance, *Half-angels* or *Angelets* were issued, and circulated down to the reign of James I.

Henry VII.—The gold Coinage at this period of our History becomes perplexing, from the many alterations which the pieces underwent in value; the Noble, which in the time of Henry VI. had circulated at 8*s.* 4*d.*, now rose to 10*s.* and received the name of *Ryal*,—a word corrupted from *Royal*, the name given to a French Coin bearing the device of the King in his Royal robes. Henry VII. caused pieces of double the value of the Noble or Ryal to be struck, which from their device were denominated *Sovereigns*, and passed for twenty shillings. This *Double Ryal* is the parent of our present *Sovereign*, and was equal in size to the Crown-piece, but proportionably thin; on the obverse the King appears in his royal robes, seated on his throne, with the sceptre in his right hand, and the orb and cross in his left. A variety of ornaments are introduced too inconsiderable to be detailed. The reverse of the Sovereign represents an expanded double rose, to signify the union of the Houses of York and Lancaster; the central space is occupied by an escutcheon, and the Legend which encircles the device is similar to those on the silver Coins. The type of the double rose is given on Coins down to the reign of James I. Henry VII. also issued *Double Sovereigns*, differing only from the above in the increase of thickness; but very few were struck, on which account they are usually regarded as pattern pieces.

Fig. 19.

Henry VIII.—In the early part of this reign a greater variety prevailed in the gold Coinage than at any former or subsequent period. The pieces underwent likewise a material change in their value: the Noble was raised from 10*s.* to 11*s.* 3*d.*, and the Sovereign consequently was valued at £1. 2*s.* 6*d.*; the Angel, which had until now retained its value of 6*s.* 8*d.*, rose to 7*s.* 6*d.*; and a Coin was struck of the former value of the Angel, denominated the *George Noble*. The type of St. George overcoming the dragon appeared now, for the first time, on this new Coin, which, however, ceased to be struck shortly after its appearance. After the lapse of a few years, a complete change occurred in the Coins of this metal: the Noble and its parts were no longer struck; the Double Ryal received the appellation of *Pound Sovereign*, and was ordered to pass for 20*s.*; the Angel rose in value from 7*s.* 6*d.* to 8*s.*, and the *Quarter Angel* was first struck; lastly, to supply the places of the Half and Quarter Noble, *Crowns* and *Half-crowns* were struck in gold. Crowns were struck in this metal down to the reign of George III. Those of Henry VIII. bore the devices of a double rose and an escutcheon, each surmounted by the Imperial crown: hence their appellation. The Legend, HENRIC. VIII. RVTILANS ROSA SINE SPINA, accompanied the symbol of the rose; and in the area the initials of the names of the King and his Queens were at different times inserted.

English Coinage.

James I.—We pass over the intermediate reigns, as the changes which took place were confined to alterations in the value of the Coins, and a few trifling varieties in the devices; an attention to which, in this brief sketch, might lead to confusion without affording interest to our readers. The Coins of gold in the reign of this Prince were but of three kinds; the *Unite*, another name for the Pound Sovereign, constituted the chief Coin, and received its name from the *union* of the two crowns in the person of this Monarch; on the obverse is a bust of the King, on the reverse the royal shield of arms under a crown. The Crowns of gold retained their value of 5*s.*, but their devices were altered, and had reference to the Union; on one of the sides appears a rose and on the other a thistle, each surmounted by the Imperial crown; they were in consequence designated *Thistle Crowns*. The Angel is now of rare occurrence, but the want of it was less felt from the introduction of *Double Crowns*, valued at 10*s.*, and two of which constituted the Unite.

Charles I.—The Unite now took the name of *Guinea*, from the metal of which it was struck being procured by the African Company from the coast of Guinea; the value first assigned it was that of 20*s.*, from which it gradually increased to 30*s.*, but in the end fell to 21*s.*, at which it has since remained. The Double Crown now formed the *Half-Guinea*. *Two* and *Five Guinea pieces* also were issued, the former being equal in size to the Crown piece. All of these Coins bore, on the reverse, devices nearly similar to those impressed on the Crowns in silver.

George III.—Besides the Guinea and its Half, *Quarter-Guineas* were struck in the early part of this reign; but they were soon called in. The Two and Five Guinea pieces continued in circulation, and *Seven Shilling pieces* issued for the first time; but, from creating a confusion with the Half-Guinea, they gradually disappeared.

In the year 1815, all of the above were called in, and the *Sovereign* and *Half-Sovereign* substituted in their room.

The Coins of least value which have circulated in England from the epoch of the Conquest, are the Halfpenny and Farthing; but these being struck in silver so late as the reigns of Mary and Elizabeth, will account for a Coinage of copper having been so long excluded from our Mint. Owing to the gradual decrease in the value of silver, the parts of the Penny had so much declined in size, that they were continually liable to be lost, and for this evil a remedy was sought by recourse to a metal of inferior value. Snelling divides copper Coinage into four parts, an arrangement which will answer our present purpose. Under the first division will be included the Tokens in lead, tin, and copper; the second, the copper Coinage instituted by Royal authority; the third, the town Farthings, and tokens of private tradesmen; and the fourth and last, all the pieces issued from the Mint, in copper, after the second institution by Royal authority of a Coinage of that metal. Class I. Tokens in lead, tin, and copper appeared in the reigns of Henry VIII. and Elizabeth, and are far from numerous. The Farthings of silver ceasing to be struck in the reign of the latter, it was found requisite that some Coins should be substituted for them. A memorial was in consequence drawn up, proposing an alloy of silver and copper; Elizabeth, however, expressed herself strongly averse both to a

The copper Coinage of England

Numismatics.

Coinage of copper and to any debasement; the scheme in consequence fell to the ground. The pattern pieces struck on that occasion, on the obverse represent a bust of the Queen, and sometimes a rose surmounted by a crown; on the reverse is a monogram, occupying the field, in which the characters of her name are ingeniously interwoven. The Legend, THE PLEDGE—OF A HALFPENNY, is separated, one half appearing on each face. Class II. In the following reign the want of pieces of the above value was so generally felt, that tradesmen took upon themselves to strike tokens in copper and other metals; a process which, being justly regarded as an infringement on the Royal Prerogative, led at length to an authorized copper Coinage. This Coinage consisted solely of Farthings, chiefly struck during the reigns of James I. and Charles I.; the obverse represents two sceptres crossed, surmounted by a crown; the type of the reverse is a harp,—as it was designed to send them to Ireland had they been refused in this Country. Class III. The above Coinage was from some causes discontinued, and the distracted period of the Commonwealth succeeding, did not admit of attention to its revival. Hence private tradesmen resumed to themselves the privilege of striking their own pieces; and to such an extent did this system (almost peculiar to England) prevail, that no fewer than 3000 persons are reported to have issued their own Tokens. These pieces offer an infinite variety in their devices. Class IV. This last division commences in the reign of Charles II., when a Coinage of Halfpennies and Farthings of copper was issued by Royal proclamation. They bore, now for the first time, the device of Britannia, slightly differing from the figure on the current Coin. It was not until the reign of George III, that pieces of the value of a Penny and Twopence were coined.

We have now specified all the devices of importance to be found on British Coins, and when compared with those which have formed the subject of the preceding sections, their number will be found to be extremely limited. It has been frequently regretted, and we think not without reason, that a greater diversity has not prevailed among the symbols. Pope has observed:

> O when shall Britain, conscious of her claim,
> Stand emulous of Greek and Roman fame?
> In living Medals see her wars enroll'd,
> And vanquish'd realms supply recording gold?

Swift's plan for the improvement of British Coins.

In the reign of Queen Anne, Dean Swift delivered to the Lord Treasurer a plan for the improvement of British Coins; in which he proposes, "that they should bear devices and inscriptions alluding to the most remarkable parts of her Majesty's reign." "By this means," he continues, "Medals that are at present only a dead treasure, or mere curiosities, would be of use in the ordinary commerce of life; and, at the same time, perpetuate the greatness of her Majesty's reign, reward the labours of her subjects, keep alive in the people a gratitude for public services, and excite the emulation of posterity. To these gracious purposes nothing can so greatly contribute as Medals of this kind, which are of undoubted authority, of necessary use and observation, not perishable by Time, nor confined to any certain place, properties not to be found in books, statues, pictures, buildings, and other monuments of illustrious actions." The scheme failed, like many others of a similar kind; all that was effected was the striking a small number of Coins, chiefly pattern pieces, the celebrated Farthings of Queen Anne. These Coins have been justly esteemed for their workmanship, but they are, with a few exceptions, by no means rare; and the greater number of them bearing only a figure of Britannia for the type of the reverse, are little deserving of notice.* Had the plan suggested by Swift been put in practice, it would at once have ennobled our Coinage, and have elevated it far above the rank of a mere medium of commerce.

British Coinage.

Farthings of Queen Anne.

The introduction of Heraldic ensigns, which we stated took place about the XIVth century, has prevailed in the Coinage of almost every European Power; and though symbols of that kind may be introduced with propriety, they have effectually led to the exclusion of all attempts at variety of design. The execution of the English Coins, at the present day, is equal if not superior to that of the Coins of every other nation.

Armorial bearings

The introduction of the Mill effected a material improvement in the appearance of our Coinage; and while under the direction of Thomas Simon it attained to great excellence. The Coins also of Queen Anne and of George I. are entitled to much praise. During the two succeeding reigns, the Arts generally were in decline, but they revived with George III. The thinness of our early Coins precluded the power of giving any considerable relief to the portraits, which constitutes one of the chief beauties of ancient Coins. And even now, in order to obviate the loss of metal occasioned by friction, the relief is kept extremely low. Greater attention, however, is bestowed on the detail; and, for neatness of fabric and delicacy of execution, the recent Coinage seems scarcely to be capable of improvement.

Workmanship of English Coins.

The earliest Coins struck in Scotland have been referred to Alexander I. A. D. 1007, from which date down to David II. they continued of the same size and value as those of England, receiving thence all their improvements. The chief Towns appearing on the Coins of the above-named period are ED and EDENEBV, (Edinburgh,) PERT, (Perth,) ROCESBV, (Roxburgh,) BEREWIC. (Berwick.) Halfpennies and Farthings also were coined; with David II. the Groat and Half-groat, and in the XVIth century the remaining denominations of silver Coins. Gold circulated in Scotland about thirty years later than in England, and the Coins struck received the appellation of *St. Andrews Lions*, and *Unicorns*, from the devices which they bore. A Coinage of copper existed in Scotland at an earlier period than in England; a currency also was established of *Billon money*, or copper washed with silver.

Coinage of Scotland.

The Danes struck Coins in Ireland in the VIIIth and IXth centuries on the model of those of England; but so barbarous is their workmanship that the human countenance can scarcely be discerned, and in lieu of letters only strokes, IIIIII, appear. The Coins of the Irish Kings were struck in Dublin, but those of British Monarchs abound, also struck in that City, which resemble in many respects the Coins of England down to the reign of Henry VIII. Under that Prince, the badge of the harp was first assumed for Irish Coins. On the pieces struck from the reign of John to that of Henry V., the heads of Kings appear enclosed by triangles; and after the last-named Prince, they are distinguished by the names of the Irish Cities which they bear. In the time

Coinage of Ireland.

* One of Queen Anne's Farthings, dated 1714, was current. The two bearing Britannia under a Portal, and Peace with a Car are rare; that with *Bello et Pace*, 1713, is extremely rare.

Numismatics.

of Elizabeth, Coins in copper as well as in the other metals were issued for Ireland; but upon the abolition of the Mint, in the year 1640, no more gold and silver was struck.

Sect. 3.—Medals, &c. &c.

The terms *Coin* and *Medal*, though materially differing in their signification, are frequently confounded; Pinkerton, notwithstanding he has made the distinction, has neglected to observe it throughout his Essay; but it is important they should be discriminated. *Coin* is applied to such productions of the Mint as were intended for currency as money; *Medal* to such as were struck in commemoration of events or in honour of individuals. The misapplication of the terms has probably arisen from the number of Numismatical Works which have appeared in the French tongue, and in which *Médaille* is employed in both senses.

The remarks offered upon the subject of modern European Coinage, are applicable in many instances to Medals also; such as an absence of character in the portraits, and a forgetfulness of the manners of the Time and Country in their devices. Among the peculiarities which distinguish the modern from the ancient Medals, may be mentioned the introduction of portraits of illustrious characters. It is remarkable, that while busts are found of many of the ancient Poets, Historians, and Philosophers of celebrity, their portraits never occur on Medals. On the other hand, no sooner had the Art of Die Engraving revived, than it became applied to the purpose of transmitting to posterity the portraits of distinguished individuals. Another distinction worthy of notice is, that modern Medals have frequently been employed as vehicles of Political satire; a practice which prevailed chiefly in the Low Countries. There is reason to believe that Satire, which has now quitted Medals for Prints, was not altogether unknown to the Roman Mint; it is certain, however, that it was but rarely practised.

Many of the early Medals, though defective in design, are pleasing from the boldness of the parts, simplicity of the forms, and force of relief; in the course of time we find greater attention bestowed on the detail and general appearance, their chief merit consisting in a display of the minuteness of Art. Among the symbols we frequently meet with the delineation of edifices of celebrity, of which perspective representations are given. The buildings represented on Roman Coins, on the other hand, are simple elevations. The personages of the Heathen Mythology are frequently introduced on Modern Medals, in connection with the events they commemorate; a glaring impropriety, which is rendered more apparent when we remember that these symbols, occurring on ancient Medals, strongly illustrate the manners of the Age.

The Legends on Modern Medals have been oddly divided by one writer into the Impious, Poetical, Jingling, Intricate, and Amusing, to which Pinkerton adds, Long Legends. We cannot find room to insert specimens of these strange varieties.

The first Medal struck in England is of Henry VIII.; it is in gold, and bears his portrait, and an inscription on the reverse. With Edward VI. the Coronation Medals commence, and from that reign Medals exist of all our Monarchs bearing symbols of a political nature. Those of the Commonwealth and Charles II. were executed by Simon, and have been engraved by Vertue.

Modern Medals.

On the Medals of Queen Anne the splendid achievements of Marlborough are recorded, and shortly after Dassier, a Genevese, executed the Medals of the Kings of England and of many illustrious characters. Scotch Medals have been found of an earlier date than the English, one existing of David II.; it was struck in the XIVth century, is of gold, and formed upon the model of the Nobles of Edward III. The Medals of Mary are numerous, and the most interesting of the series.

The Papal Medals are the earliest, and at the same time most complete Modern series which exists; they commence with Paul II., 1464; there are, indeed, Medals to be found of Popes many centuries previously, but they were struck by the successors of the above. The common types on the reverses of these Medals are the cross keys and mitre; the obverse bears the head of the Pope, with or without the mitre. A few of the Popes, as Julius II. and Leo X., were so fortunate as to have the Historical devices on their Medals designed by the distinguished Painters of the Age, as Raffaelle, Julio Romano, and others. Medals abound of many of the Italian States, especially of Florence and Tuscany; a fine series is extant of the Medici family also. The most remarkable of the French Medals are those of Louis XIV., forming a complete History of his life. The German Medals appear with Frederick III., 1453, and are numerous of the separate States as well as of the Emperors. Medals begin in Holland, 1566, and are rendered chiefly conspicuous by the maps and plans delineated thereon, devices which, though they exhibit poverty in design, are nevertheless curious and useful. The Spanish Medals commence with Consalvo, about the year 1500. There are other series appertaining to Denmark, Sweden, and Hungary.

Distinctions between genuine and counterfeit Coins.

It is highly important that a person desirous of collecting Coins, should be enabled to detect the forgeries of modern times, as we regret to say they prevail to a very great extent. This knowledge can be acquired only by a careful examination of Coins known to be false with such as are accounted genuine. The hints given in books, a few of which we shall subjoin, may be read with advantage preparatory to such an exercise, but of themselves they can contribute little to security. The means by which the Medallist is enabled to detect true from counterfeit Coins are so various, and depend upon such minute peculiarities, as not to admit of being suitably expressed in words.

No sooner had a taste for collecting Coins manifested itself than attempts were made to impose upon the ignorant; and the individuals engaged in these forgeries, so far from regarding the practice dishonourable, claimed to themselves especial merit for their skill in accurate imitation. Many of the European Countries have produced individuals who have acquired celebrity by this disgraceful practice: the most celebrated were two Italian brothers, the Cavini of Padua; their pieces are designated *Paduans*, and exhibit extraordinary skill. Carleran practised the same trade in Holland, Dervieu of Florence confined himself to Medallions, and Cogomier forged the Thirty Tyrants in brass. Pinkerton divides counterfeit Coins into six classes. They are as follows: I. Modern imitations of ancient Coins, which have acquired value from being fabricated by artists of eminence. II. Coins cast from the preceding. III. Coins cast from the antique. IV. Ancient Coins retouched, and the obverses and reverses altered. V. Coins im-

Numismatics.

pressed with new devices and soldered. VI. Counterfeit Coins which have clefts filed in them, and those which are plated.

The forgeries have been chiefly directed to perfecting the different series known to bear a high value; the Imperial Medallions and series in first brass, are consequently the classes in which they most abound. Forged Coins, from being cast, generally do not exhibit the same degree of sharpness as those which are genuine, the projections are more rounded, and those portions of the objects which unite with the ground are less strongly marked. The surface of the metal being corroded is no criterion of the genuineness of a Coin, as by an ingenious application of acids the effects of Time can be given with great nicety.

Directions for forming Cabinets.

Cabinets of Coins, as Pinkerton observes, may be considered as of three kinds: the first of these may be termed the Complete Cabinet, including the Coins of every Nation both ancient and modern; in the second the completion of one series is aimed at; and the third consists of an assemblage of specimens selected from the leading classes.

The complete Cabinet, from the great expense attending it, is rarely formed by individuals but reserved for scientific and learned Institutions. As the directions for the formation of this Cabinet will apply, however, in part, to the remaining two, and as it should form their basis, we shall lay down the method we conceive the most desirable.

In the classification of Coins, an alphabetical arrangement was formerly rendered subservient to every other, with a complete disregard of time and place. A system more accordant with truth, is that in which the alphabetical order is made secondary and introduced only to facilitate reference.

The Coins of the Greek Cities and Free States take the lead, observing the following order with the Countries:

Europe.	Asia.
Spain.	The Countries of Asia Minor.
Gaul.	Ionian and Carian Isles.
Britain.	Armenia.
Italy.	Commagene.
Sicily.	Syria.
Sicilian Isles.	Seleucis.
Mœsia.	Cœle Syria.
Thrace.	Phœnicia.
Macedon.	Judæa.
Thessaly.	Edessa.
Illyria.	Parthia.
Epirus.	Persia.
Corcyra.	Africa.
The States of Northern Greece.	Ægyptus.
Eubœa, Crete.	Cyrenaica.
Egiua, Cephallenia.	Zeugitania.
Zacynthus, Ithaca.	Numidia.
The Peloponnesus.	and
Isles of the Egeau Sea.	Mauritania.

The Coins of the Cities in each Country may be disposed alphabetically, the gold taking precedence of the silver, and the silver of the copper. The Coins of the Greek Princes class with the respective Countries.

The Roman Coins will succeed in the following order:

Roman *Asses*, arranged in sets.

Coins of the Roman Families in alphabetical order.

Imperial gold coins; Imperial silver Coins.

Imperial first brass; second brass; third brass.

Arrangement of Coins in a Cabinet.

Imperial *Minimi*, including the *Quinarii* of gold and silver, and the smallest of the copper Coins.

Imperial Medallions of all metals.

Imperial Greek Coins; Colonial Coins.

Coins of the Emperors struck at Alexandria, generally in base metal.

Lastly, Coins of a few Gothic Princes, of the early Eastern Nations, &c.

In the Modern department, the Countries are arranged chronologically, with the exception, however, of England, the Coins of which, from the great perfection of the series and the interest thereunto attached, may, at least in an English Cabinet, take precedence of the rest. When the Coins of any one Kingdom are very numerous, they may be classed according to their dimensions, in which case it will be found, that the Modern silver Coins fall under three sizes: thus we have the Penny, which for many Ages constituted the sole Coin; the Groat, a Coin of some importance for a considerable period and existing to this day; and, lastly, the Crown-piece from the commencement of the XVIth century.

The Cabinets formed in England are chiefly of the second kind, in which the collector has had in view the perfecting of a single class, whether Greek, Roman, or English Coins, the last in all probability very naturally being the most extensive. When the series of Imperial Coins in first brass cannot be perfected, from the excessive rarity of those of a few Emperors, the second brass may be substituted; also the small brass resorted to in order to complete a series in the middle size. The same may be done in the Roman gold and silver Coins, otherwise it would frequently be impossible to form a sequence. When the Imperial Coins are not numerous in a Cabinet, they may be classed with the Roman Imperial, and follow in the order of the Emperors.

The third Cabinet or Casket of Coins, as it may be termed, will, from its variety, prove more generally interesting than the two preceding; an attentive examination into the above arrangement will suggest the best method of disposing of the Coins, but much must of necessity be left to the judgment and fancy of the collector.

Numismatical Writers.

A full and accurate description of Grecian and Roman Coins will be found in the *Doctrina nummorum veterum* of Eckhel; the Work is extended to eight quarto volumes, and is without question the most complete of its kind. The writings of Patin, Jobert, and Pinkerton take the lead among the elementary productions; the *Essay* of the last, though occasionally deficient in accuracy and perspicuity, forms on the whole the best introduction to a knowledge of the study that has yet appeared. The Grecian Coins are detailed in the Works of Goltzius, Magnan, Gessner, Frœlich, and Pellerin, some of which are little more than extended Catalogues of Coins. Vaillant has written at considerable length on the Monarchic Coins, as well as the authors just mentioned; a very good general knowledge of this class of Coins may also be obtained by a perusal of *L'Iconographie Grecque*, by E. Q. Visconti. A small Work entitled *Numismatique du Voyage du Jeune Anacharsis*, by Dumersan, gives a concise account of the most important of the Grecian Civic Coins, and is beautifully illustrated.

In the division of Roman Coins, Vaillant and Morel have each left excellent Works on the Coins of the

Numismatics.

Families; for those of the Empire that of Vaillant is the chief, and it is brought down to the extinction of the Western Empire; for the remaining Coins, Banduri may be consulted. Addison's *Dialogues on the Usefulness of Ancient Medals* treats only on the Coins of the Emperors in first brass, and contains many excellent remark upon the utility of the study at large.

A complete History of the Coinage of England is afforded by Ruding's *Annals of the Coinage of Britain*; it is accompanied by a Volume of Plates executed with great care, and containing representations of all the pieces that have issued from our Mint. Snelling's *Tables* have long been popular: they form a good catalogue of English Coins, and are valuable to the collector as a Work of reference, but the preceding Work offers every information on the subject that can be desired. For Scotch and Irish Coins, Anderson and Simon take the lead; for the French, Bouterone and Le Clere; for the Papal Coins, Floravantes, Argelati for those of the Italian States, and Florez for the Spanish.

Numismatical Writers.

The value and proportion of the Ancient Coins have formed the subject of a Treatise by Arbuthnot, and the Tables which it contains, notwithstanding their great inaccuracy, have been frequently transcribed: we have endeavoured to rectify these errors in the Tables above given for the Greek and Roman Coins, but a complete Work of the kind is much wanted.

A Table, exhibiting the Comparative Value of the chief Gold Coins of Modern Countries reduced to the standard of England.

Countries.	Names of Coins.	Current Value.	Value in Sterling £.	s.	d
England	*Sovereign	20 Shillings	1	0	0
France	*Piece of 20 Francs (*Napoleon*)	. . .	0	15	10
Netherlands	10 *Guilder*, or *Florin Piece*	. . .	0	16	5¾
Holland	**Ryder*	14 Florins or Guilds.	1	4	9½
Denmark	*Pistole* (Christian d'or)	. . .	0	16	6
Russia	**Half-Imperial*	5 Rubles	0	16	1¾
Austria	**Sovereign*	. . .	0	13	11
Germany. Bavaria	*Max d'or*	7 Florins 8 Creutzers	0	13	7½
Bavaria	*Carolin*	10 Florins 42 Creutz.	1	0	4¼
Wirtemburg	**Pistole*	10 Thalers	0	16	4½
Brunswick	**Pistole*	10 Thalers	0	16	4½
Westphalia	**Pistole*	10 Thalers	0	16	3¾
Saxony	*Do. (Auguste d'or)	10 Thalers	0	16	3¾
Hanover	Do (George d'or)	. . .	0	16	4½
Prussia	**Pistole* (Frederick)	. . .	0	16	3¼
Italy. Milan	**Pistole*, or *Doppia*	20 Lires	0	15	7¾
Piedmont	*Pistole*, Do.	20 Lires	0	15	10
Parma	**Double Pistole*	40 Lires	1	14	1¾
Tuscany	*Ruspone* of Etruria	40 Lires	1	8	6
Rome	*Scudo* of the Republic	. . .	3	4	11¾
Sicily	**Ounce*	60 Tari	0	10	3½
Switzerland	*Pistole* of the Helvetic Republic	24 Livres	0	18	8¾
Spain	**Double Pistole*, or *Doubloon*	. . .	1	11	10¾
Portugal	**Half Joannese*	6400 Rees	1	15	8¼
Turkey	*Sequin*	The number of Piastres vary	0	7	7
	Messeir		0	2	1¾
	Vermeebeshlik	. . .	0	12	5¼
United States	**Eagle*	10 Dollars	2	3	6½
India	*Mohur* (Bombay)	15 Rupees	1	8	10¼
	*Do. (Company's)	15 Rupees	1	9	2¼
	*Do. (Madras)	15 Rupees	1	12	10¼
	Star Pagoda	4 Rupees	0	7	4¼

* These have their Doubles, Halves, &c. in proportion.

Note. The *Ducat*, varying by the above computation from 9*s.* 2*d.* to 9*s.* 4¾*d.*, circulates throughout Germany, Switzerland, and most of the Northern European Countries, as Denmark, Sweden, and Russia: it has also its Double and Half. This Coin is also common among the Italian States, where it passes under the name of *Sequin*; in Venice it is termed *Chequin*, or *Zecchino*.

A Table, exhibiting the Comparative Value of the chief Silver Coins of Modern Countries, computed at the rate of 5s. 2d. per ounce, standard.

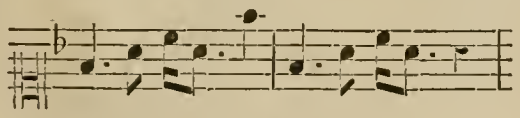
Countries.	Names of Coins	Current Value.	Value in Sterling s.	d.
England	*Crown* (⅓ in proportion)	5 Shillings	4	8¼
France	*Franc* (⅓ in prop., also 2 and 5 Franc pieces)	100 Centimes	0	9¾
Holland	*Florin* (30, 12, 8, &c Stiver pieces in prop.) 63 Stivers constitute the *Ducatoon*, 50 the *Rix-dollar*.	100 Cents. or 20 Stivers	1	8¼
Denmark	*Krone*, or Crown, ⅔ of *Ryks-daler*	4 Marks	2	10½
Sweden	*Rix-dollar* (½ in prop.)	. . .	4	4¼
Russia	*Ruble* (½ and ¼ in prop.)	100 Copecs	3	2¾
Prussia	*Gulden* (Florin) ⅓ in prop.	24 Groschen	2	3¾
Germany	*Thaler* or Dollar (½ and ¼ in prop.) The Thaler is the measure of value throughout the German States.	. . .	3	11
Hungary	Krone	. . .	4	3½
Switzerland (Geneva)	*Patagon*, or Crown (½ in prop.) This Coin varies in each of the Cantons.	3 Livres	3	11
Italy (Rome)	*Scudo*, or Crown (½ in prop.) The Scudo is the chief silver Coin of this Country, but is subject to great variation in the several States.	10 Paoli, or 5 Lires	4	2½
Sicily	*Scudo* (⅓ in prop.)	30 Taris	4	0½
Spain	*Piastre*, or Dollar	10 Rials	4	3¾
Portugal	*Crusado* (⅓, ¼, &c.)	480 Rees	2	3½
Turkey	*Piastre* (⅓ and ¼)	40 Paras	0	9½
United States.	*Dollar* (⅓ in prop.)	100 Cents	4	3½
India	*Rupee*	16 Anas	1	11

Note. For the Spanish, Portuguese, and Dutch settlements on the Continent and in the West Indies, see the Coins of the respective Nations.

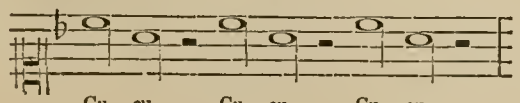
MUSIC.

Music. THE art of combining sounds agreeable to the ear was among the earliest of the Sciences; with the Ancients the term had a much more extensive signification than it now carries with us. Under the term Music were comprehended not only that Science to which it is at present confined, and also the accomplishments of Dancing, and of Acting, but even Poetry and the whole circle of Sciences. According to Hesychius, the Athenians understood the term in this latter sense, and a modern Musician would have us believe that in Music is to be discovered the governing principle of all the proportions, not less than the foundation itself of all the Sciences.

Its origin. The origin of Music must from its nature have been remote: this, however, is not the place for examining the claims of Mercury to the invention of the lyre; nor whether the Greeks were indebted to Cadmus, when he eloped from Phœnicia with Hermione, or Harmonia, which would fabulously establish the knowledge of it in that Country; nor whether Amphion, as Plutarch states, was the person to whom they were obliged for its invention. Neither is it of consequence here to inquire into the claims on that head of Apollo, Chiron, Demodocus, Hermes, Orpheus, and others; nor even that of Tamiris, the reputed inventor of Instrumental Music. These, or the greater part of them, preceded Homer. Others, such as Lasus, Melnippides, Philoxenus, Timotheus, Phryneus, Epigonius, Lysander, Simmicus, and Diodorus, have the reputation of having brought it to a considerable degree of perfection. It may almost be assumed that Vocal Music preceded that of instruments, and it is most probable that the natural elevations or depressions of the human voice in expressing the different passions of the mind, as well as the attention which would be naturally directed to the modulated song of the bird creation, would indicate the facility of so regulating the human voice as to suggest the elements of Melody. A portion of the song of the blackbird consists of true diatonic intervals, and may be thus expressed:



The note of the cuckoo is well known to be



Cu - cu Cu - cu Cu - cu.

Progress. A love of protracted and inflected sound differing from that of Speech is implanted in mankind throughout the Globe. Hence the progression would seem likely to the Music of wind instruments, which Lucretius has beautifully described in the following lines:

At liquidas avium voces imitarier ore
Ante fuit multo, quam levia carmina cantu
Concelebrare Homines possint, aureisque juvare:
Et Zephyri cava per calamorum sibila primum
Agresteis docuére cavas inflare cicutas.

Lib. v. v. 1378.

The next step in the progress of the Science would be to Musical sounds produced by the aid of strings: this, Vitruvius, in his Treatise on Architecture, has called to his aid even for the purpose of ascertaining the proper tension of the ropes used in the catapultæ and balistæ. Instruments of percussion, such as drums and some other military instruments, would find their type in numberless hollow and even solid sonorous bodies in Nature which emit sounds, and those frequently far from disagreeable, on being struck by another solid body. Music.

Could we implicitly rely on the statements of the early writers, either the Music of the present Age has degenerated in an immeasurable degree, or the senses and passions of Man have altogether changed. Aristotle, who appears to have written mainly with the view of combating the doctrines of Plato, nevertheless agrees entirely with him in respect of the influence of Music on mankind. Polybius tells us that the Arcadians, who inhabited a cold and inhospitable Country, could only be civilized through the medium of Music; and further, that the inhabitants of Cynetus, who neglected the cultivation of that Science, surpassed in cruelty all the rest of the Greeks. Athenæus assures us that the promulgation of laws both human and divine, the knowledge of all that related to the Gods, to heroes, and to the deeds of illustrious men were written in verse, and publicly sung with an accompaniment of instruments; a practice of which, as we learn from the Scriptures, was conformable to that of the Israelites from the earliest period of their History. Sensibly, however, as even to this day some are affected by the powers of the Science, the time seems passed when a Timotheus could excite the passions of another Alexander by employing the Phrygian, and allay them by the use of the Lydian mode. It cannot, indeed, be denied that the national Music of every Country has a direct influence on the passions of its inhabitants; than which a stronger instance cannot be adduced than that it was forbidden, under penalty of death, among the Swiss mercenaries employed on foreign service, to sing or play the celebrated *Rans des Vaches*, because of the melancholy it always produced, a circumstance which must be familiar to our Musical readers. Nor are other Countries without those melodies which are capable of raising and depressing the spirit of their inhabitants. "What," says Burney, "the ancient Music really was it is not easy to determine, and the whole is now become matter of faith; but of this we are certain; that it was something with which mankind was extremely delighted; for not only the Poets, but the Historians and Philosophers of the best Ages of Greece and Rome are as diffuse in its praises, as of those Arts concerning which sufficient remains are come down to us to evince the truth of their panegyrics."

Egyptian Music.

Egyptian. However rude and artless the first attempts in Music must have been, and little as was the probability of its having been perfected by the first cultivators, yet we are told by the ancient Poets and Historians that by them its mira-

Music. Egyptian.

culous powers were most successfully exercised, though it is not an easy matter to determine who they might have been. Herodotus, in his *Euterpe*, speaks of the Egyptians and Phrygians in regard to their respective antiquity; but neither concerning the Phrygians, nor the Phœnicians, undoubtedly a most ancient race, can more than conjecture be now offered; we shall proceed therefore at once to a succinct account of the Music of the Egyptians, whose monuments still present to the traveller indisputable proofs of their Religion and Arts. It would be vain to attempt its History from a higher source.

Though Diodorus Siculus has asserted that Music was prohibited by the Egyptians, as not only useless but even noxious from its tendency to make Man effeminate, we must oppose to his assertion the account of Plato, who travelled in Egypt in order to become acquainted with its Arts and Sciences. It is, moreover, observable that Herodotus, also a traveller in Egypt more than three hundred years before Diodorus, says, that it was used in their festivals and Religious ceremonies. Diodorus, indeed, contradicts himself, inasmuch as he tells us that Music and the Musical instruments were the inventions of the Egyptian Deities, Osiris, Isis, Orus, and Hermes, and that all the great Poets and Musicians of Greece visited that Country to improve themselves in the Arts. Strabo says, that the Egyptian children were taught letters, the songs appointed by the law, and a species of Music directed by the Government exclusive of all others. It should not be forgotten also that the Greeks, who had a propensity to claim the merit of every important invention, confess that the greater part of their Musical instruments were of Egyptian origin. Such are the triangular lyre, the monaulos, or single flute, the cymbal, or drum, and the sistrum, an instrument almost universally found on the monuments of the Egyptians. Every person acquainted with History will remember that among the Egyptians all professions were hereditary. The same practice existed with the Hebrews; and we are told by Herodotus, that the Lacedæmonians, who were by origin Dorians, so far pursued the system of their progenitors, that their Musicians were all of one family, and that their Priests, like those of Egypt, were initiated in Physic, Music, and Religion.

On the well-known Guglia Rotta, at Rome, which was placed by Augustus in the Campus Martius, after he had reduced Egypt to a Roman Province, among other Hieroglyphics is to be seen a Musical instrument

of two strings, having a neck very similar to the calascione, still in use in the Kingdom of Naples. This species of instrument, therefore, must be considered of very high antiquity, and it is to be observed, that being furnished with a neck it was capable of producing many notes; inasmuch as if its strings were tuned in fourths, we have a series of sounds termed a heptachord by the Ancients. If, like those of the calascione, they were tuned in fifths, we have an octave, or two disjunct tetrachords, a power which, from all the remains of Greek sculpture, does not appear to have existed till a comparatively late period; indeed, Montfaucon, who examined the representations of nearly five hundred ancient lyres, harps, and citharæ, asserts that he had not found any in which a contrivance was apparent for shortening strings by a neck and finger board during the time of the performance. It appears, therefore, that the mode of extending a scale and of producing many sounds from few strings by the simplest means, was known to the Egyptians. It would exceed our limits to attempt fixing a date for the instrument thus alluded to. The literature of Egypt may even at this late period receive elucidation from the extraordinary and brilliant efforts of a Champollion. We shall here merely observe, that though more remote periods have been generally assigned to the monuments of the Egyptians than modern travellers and antiquaries have proved were due to them, yet the specimen in question is of sufficiently early date to afford ample room for speculation.

Music. Egyptian.

One of the secondary Gods of Egypt, who received divine honours for his extraordinary talent, was the Mercury surnamed Trismegistus: to him is attributed the formation of a regular Language, and many other matters important to mankind. Apollodorus attributes to him the invention of the lyre. The tale appears and doubtless is a pleasant fable: Mercury, as he walked along the banks of the Nile, after an inundation, which had deposited a great number of dead animals on its banks, struck his foot against the shell of a tortoise, whose cartilages by desiccation had become sonorous, the points of their original insertion in the shell remaining still fixed. This is said to have suggested the earliest idea of the lyre, which undoubtedly was first constructed in the form of a tortoise. To the first instrument of this sort three strings appear to have been given. The ancient writers on Music have supposed that the three sounds of these strings were E, F, and G, but Boethius makes the number of strings four, and says they were tuned thus, E, A, B, *e*; though this mode of tuning is generally supposed to have been the invention of Pythagoras, and at all events appears to have been introduced into Greece by that Philosopher.

The lyre.

To the dichord and trichord, which may be satisfactorily traced from Egypt, a claim is made by many for the addition of the monaulos, or single flute, which was crooked, and bore the Egyptian name of photinx. In form resembling a bull's horn, it is seen in numberless remains of ancient sculpture. Apuleius, in speaking of the mysteries of Isis, describes the crooked flute as held by the performer with the crook turned towards his right ear. That the Egyptians possessed the use of many instruments, other than those above recited, is clear from the original representations of them that have reached us, and particularly from those found on the walls of the celebrated tomb of Osymandyas at Thebes, whose stupendous remains have been described as exceeding more than half a mile in length. This sepulchre has been assigned to a period full two thousand years before Christ.

The flute.

But the most convincing proofs of the progress and successful cultivation of Music among the Egyptians are to be found in the sepulchres of the Kings of Thebes, in which we find four varieties of the harp, the smallest with four strings, and the largest with thirty-eight strings, according to the representations by Denon. The action of the figures playing on two of these harps indicate very considerable execution on the instruments;

The harp.

Music. Egyptian.

and if the figures moreover be used as a scale by which the instruments may be measured, it would appear that they were superior in size to those used in the present day. Among the representations in these remains we also find an instrument very similar to the Spanish guitar, except that the neck is longer. Dr. Burney has ventured some conjectures on the tuning this harp, on the authority of representations furnished him by the celebrated Bruce, but on these no reliance can be placed. Bruce gives but thirteen strings to the same harp on which Denon has bestowed no less than twenty-seven. And the form of the frame in the drawing by the former bears so small an appearance of Egyptian workmanship, that we must rather rely on the information and drawing of the French traveller.

Perfection.

The Arts whose origin and perfection are to be found in this nation at a very early period, doubtless flourished whilst it was free, or at least under its own Kings. But after Psammenitus, the last of them, who was conquered by Cambyses 525 years before Christ, it was subjected to a foreign yoke. Its Arts and Sciences then disappeared, or rather seemed not exclusively to belong to it. However much the Ptolemies may have appeared to patronize them, and especially Music, yet under their sway, the Arts were those of Greece, from which Country their professors were imported. Under these Sovereigns, who invited artists and learned men from all quarters to the City of Alexandria, Music was doubtless much esteemed and cultivated. Athenæus, in his description of a feast of Bacchus, celebrated by Ptolemy Philadelphus, describes the band as consisting of six hundred Musicians, among whom were three hundred performers on the lyre. The seventh Ptolemy having put to death a great number of the inhabitants of Alexandria, and banished such others as were attached to his brother, whose crown he had usurped, filled his dominions with Grammarians, Philosophers, Geometricians, Physicians, Painters, Musicians, and others of that class, so that the Arts again flourished in Egypt; and so great, according to Athenæus, was at that period the taste for Music among its people that there was scarcely even a labourer in the vicinity of Alexandria who was not master of the lyre and the flute.

Decay.

The father of Cleopatra, who was the last of the Ptolemies, took the title of Auletes, or flute-player, from his passion for that instrument. He thought so much of his talent on it that he established Musical competitions in his Palace, and disputed the palm with the greatest Musicians of the Age. Such was the state of Music in Egypt up to the ruin of Cleopatra's fortunes, an event which at once terminated the Empire of the Egyptians and their History.

Hebrew Music.

Hebrew.

Burney observes with much truth, that notwithstanding the great labours of the early Fathers of the Church, notwithstanding the learning and diligence of numberless translators of and commentators on the Holy Scriptures, little can be gleaned for a History of Jewish Music save what is found in the Scriptures themselves. The great antiquity of the Hebrews, and the little communication which they had with other nations, renders it next to impossible to expect any illustration of it from contemporary foreign writers.

Instruments.

The translators of the Bible have been very confused with respect to the Musical Instruments of the Jews, for in about twenty times in which תף occurs in the Hebrew Bible, it is as often translated *timbrel* as *tabret*, a matter not a little perplexing; so again the word נבל, which Harmer, from its signifying a vessel made of a goat-skin, conjectures to have been a species of bagpipe, is by our translators rendered by the word *viol* in *Isaiah*, ch. v. ver. 12, and in four other places, whilst its common translation is *psaltery*. To Jubal, sixth descendant from Cain, is attached the reputation of being "the father of all such as handle the harp and organ." The original כנר seems to have been a species of harp, but the word עגב, here translated organ, from its meaning to be set or joined upon another, was probably a number of pipes joined together resembling the common Pan's pipes, which is known to be an instrument of remote antiquity. Till upwards of six hundred years after the Deluge, the Scriptures do not record the practice of Music, but in *Genesis*, ch. xxxi. vocal and instrumental Music are mentioned, when Laban says to Jacob, "Wherefore didst thou flee away secretly, and steal away from me, and didst not tell me, that I might have sent thee away with mirth and with songs, with tabret and with harp?"

Music. Hebrew.

Next in order occurs the Song of Moses after passing the Red Sea, and the assistance on this occasion of Miriam the Prophetess, who "took a timbrel in her hand, and all the women went out after her with timbrels and with dances." During the period of the administration of Moses, no other Musical instruments are mentioned than trumpets and timbrels, and the latter only in the passage in which Miriam is concerned. The trumpets of rams' horns at the siege of Jericho, were most likely nothing more than signals for the assailants to march and shout, and by clamour to terrify the enemy. About fifty years after the Song of Deborah and Barak, we find the unfortunate offspring of Jephtha proceeding to meet her father after his victory over the Ammonites (*Judges*, ch. xi. ver. 34.) with timbrels and with dances; from which period until Saul was chosen King, about 1095 before Christ, the Bible has no reference to Musical instruments except the trumpet on military occasions. At the time at which Samuel anointed Saul, and on many subsequent occasions, there seems to have been a union of Music with prophecy. "David, with the Captains of the host, separated to the service of the sons of Asaph, and of Heman, and of Jeduthun, who should prophesy with harps, with psalteries, and with cymbals." Again, when the Kings of Israel, Judah, and Edom, with their armies were in danger of perishing in the wilderness with thirst, Elisha, the son of Shaphat, commands a minstrel to be brought to him: "And it came to pass, when the minstrel played, that the hand of the Lord came upon him. And he said, Thus saith the Lord," &c.

David.

According to Eusebius, David whithersoever he went carried his harp with him, to console him in his affliction, and to sing the praises of God. In this writer's preface to the Psalms he asserts that David, as head of the Prophets, was generally in the tabernacle with his lyre, with the other prophets and singers, and that each of them prophesied and sung his canticle as inspiration excited him. It will occur to every one that among the Hebrews Music was employed to relieve insanity. When Saul was afflicted he sent Messengers to Jesse to send his son, saying, "Let David, I pray thee, stand before me, for he hath found favour in my sight. And it came to pass, when the evil spirit from God was

Music. Hebrew.

upon Saul, that David took a harp, and played with his hand: so Saul was refreshed, and was well, and the evil spirit departed from him." Burney, in reference to the circumstance of David being met, in returning from the field of battle after his victory over Goliath, by the women of all the cities of Israel "singing and dancing with tabrets, with joy, and with instruments of music," remarks on the passage, "and the women answered one another as they played, and said," &c., that this is an indubitable proof of a chant in dialogue, or for two choirs, being in early use, and that it probably gave rise to the manner of chanting the Psalms in the Cathedral Service. Women, it appears, were allowed the privilege of singing in the public ceremonies, and in 1 *Chronicles*, ch. xxv. ver. 5, in enumerating the Musical establishments for Religious purposes, we find that "God gave to Heman fourteen sons and *three daughters*. And *all these* were under the hands of their father for song in the house of the Lord, with cymbals, psalteries, and harps." Again, verse 7, "So the number of them, with their brethren, that were instructed in the songs of the Lord, even all that were cunning, was two hundred fourscore and eight."

The reign of David may be considered the Augustan Age, if it may be so termed, of Music among the Jews. He himself appears to have been an enthusiastic performer, and in the eyes of his Queen, Michal, to have so far outstepped the bounds of decency in dancing and playing before the ark, that she came out to meet him with the following ironical reproach. "How glorious was the King of Israel to-day, who uncovered himself to-day in the eyes of the handmaids of his servants, as one of the vain fellows shamelessly uncovereth himself!" In the same chapter, 2 *Samuel*, ch. vi. ver. 5, we have the following curious notice of the materials of which some of the Jewish instruments at that time were composed: "And David, and all the house of Israel, played before the Lord on all manner of instruments *made of fir wood*, even on harps, and on psalteries, and on timbrels, and on cornets, and on cymbals." The word ברושים, according to Celsius, means the cedar tree; if it be so, the elasticity of it is nearly as great as that of fir, and, therefore, it is as proper for Musical instruments. From this passage it is sufficiently manifest, that some of the instruments of this nation had sounding-boards or bellies of this material. Upon the quality of this wood the perfection of many instruments, indeed of all stringed instruments among the Moderns, depends; such are the harp, lute, guitar, piano-forte, and violin, whose bellies are constantly made of fir.

Instruments of fir wood.

Profession of Music hereditary.

As in Egypt professions were hereditary, so among the Hebrews the profession of Priest and Musician was hereditary in the Tribe of Levi. "And the sons of Aaron, the Priests, shall blow with the trumpets; and they shall be to you for an ordinance for ever throughout your generations." During the period of Moses, whether in peace or war, none but Priests blew the trumpets; so in Joshua's time, as well at the siege of Jericho, as on all other occasions, the blowing of trumpets was confined to the Priesthood; and on David's regulation of the Music of the nation so far as the service of Religion was concerned, not only the select establishment of singing men and singing women, but all the four thousand performers upon instruments, were of the families of Priests and Levites.

Josephus, book vii. chapter xii., says, that after David brought the nation to a state of profound tranquillity, he employed himself in composing odes and hymns of various measures in honour of God, some trimeters, and others pentameters. In another passage he says, the kinds of instruments he prepared, to the sound of which he taught the Levites to execute the praises of the Deity, were a ten-stringed harp touched with a quill, (*plectrum*,) a psaltery of twelve strings played upon with the fingers, besides large cymbals of brass.

Music. Hebrew.

It has been supposed, with apparent probability, that the spoils brought from Jerusalem, and among them Musical instruments, by the Emperor Titus, have been faithfully represented in the sculpture on his Arch at Rome. Among these are particularly the silver trumpets, and the horns supposed to represent the Shawms so often mentioned in Scripture, called in Hebrew *Keranim*, or Sacred Trumpets. The Arch of Titus is, however, known to have been erected after the death of the Emperor; and the instruments are not of uncommon form. The trumpets are long, straight tubes, and the horns such as frequently occur in ancient sculpture; representations of them may be seen in Blanchini, Bartholinus, Montfaucon, Padre Martini, and others, to which we refer the reader.

Instruments.

Neither the ancient nor modern Jews appear to have had a set of Musical characters; so that the melodies used in their Religious ceremonies are mere matters of tradition, and subject to the alterations of those through whom they have been transmitted. Some learned men have considered the Hebrew vowel points in the nature of Musical characters, a conjecture which was confirmed to Dr. Burney by a learned Jew whom he consulted on the subject, who told him that the points still served two purposes;—"In reading the Prophets they merely mark accentuation, but in singing them, they regulate the melody, not only as to long and short, but high and low notes." Since the destruction of Jerusalem, Music, as well instrumental as vocal, has been banished from the Synagogue. It has been considered contrary to their law as delivered by one of the Prophets, to sing or rejoice until the coming of the Messiah; silence and repentance being prescribed till that period. The German Jews are not rigorously observant of this ordinance. Part-singing is allowed in the Synagogue by them, and in that at Prague an organ is to be heard. In Padre Martini's *Estro Poetico Armonico*, are some specimens of Hebrew Chants, sung in his time in different Synagogues in Europe; but so differently are they performed in different places, that if tradition has recorded them faithfully, it would be difficult to say to which antiquity can be assigned.

Musical characters.

Greek Music.

Of the ancient systems of Music that most completely described is Grecian, and the earliest Treatise that has reached us on the subject is by Aristoxenus, the disciple of Plato. The Greeks, however, were not the inventors of their own system, as Nicomachus has the honesty to confess. The invention of the lyre and of the Art of singing they attributed to the Egyptian Mercury, and their first Musical theory was imported into Greece by Pythagoras, who, after the manner of the Egyptian Priests, imparted it to his scholars as an inviolable secret. Jamblicus, in his life of Pythagoras, ch. xxiii., intimates that to the people it was known only in the shape of a symbolical language. Hence it did not survive the Sect by which it was cultivated. Though it has been declared by Jamblicus to be lost, modern

Greek.

Music. Greek.

Musicians, and among them the Abbé Roussier and Rameau, have not despaired of unfolding its principles. The former, a person of great learning, had not sufficient Musical education to make his theory agree with experience, whilst the latter had not sufficient learning to suit his to the history which has been transmitted by ancient authors.

History.

But before attempting to give our readers the opinions which we entertain on the Music of the Grecians, it will be right to lay before them some general view of its history, which with them, as well as with other nations, is at its beginning mixed up with mythology and fable. Padre Martini, and after him Dr. Burney, have done little more than give us, relative to the early period, what they find in the Greek Classics, leaving the reader to separate Fable from History: in short, the latter has only abridged what he found in the former. In truth, the learned Martini has so exhausted the subject that little has been left for succeeding writers.

Cadmus.

Cadmus, the son of Agenor, brought with him amongst the Phœnicians whom he introduced into Greece, a race who were called Curetes; these men were accompanied by the Arts and Sciences of Phœnicia, in which they were skilled. They spread in Phrygia, and were there named Corybantes; in Crete, where they were called Dactyli; they settled also at Rhodes, in Samothrace, and in other parts. Cadmus espoused in Samothrace Harmonia, sister of Jasius and Dardanus, who was so skilled in Music, that the Greeks honoured the Art itself with her name. Diodorus Siculus describes the ceremony of their nuptials, as having been attended by the Gods, and that Mercury was present with his lyre, Minerva with her flute, Electra, the mother of the bride, celebrated the rites of Cybele, dancing to the sound of drums and cymbals; Apollo was there also with his lyre, which was accompanied with flutes by the Muses. Diodorus lived too remotely from the event which he describes to give his account any credibility, were it even divested of fable; it is not, however, improbable that the marriage of Cadmus with Harmonia was marked by such Dramatic and Musical performances as the Age afforded.

The flute.

To Minerva is assigned the invention of the flute with several holes, apparently, and perhaps really, a much more ingenious invention than the flute of Pan, or Pan's pipes, which consisted of several tubes of different lengths. Hyginus relates that Minerva having excited the laughter of Juno and Venus whilst playing the flute, examined afterwards her reflected image in a fountain, and perceiving the grimace and contortions it produced in the face, threw her flute into the water, and thenceforward confined her Musical performances to the lyre. Lucian has amused himself with the quantity of employment which the Greeks gave to Mercury, among the rest of his feats was the invention of the seven-stringed lyre; this, however, must have been that of the Egyptian Mercury, as we have above mentioned. Apollo also seems Egyptian in his origin; his Musical contest with Pan is familiar to every one, and in the judgment of Midas we discover the fictitious revenge of some neglected Poet of Phrygia. Marsyas, another competitor with Apollo on the flute, did not escape without the loss of his skin. Fortunio Liceti* considers this tale allegorical, and thus explains it. Previously to the use of the lyre, the flute was the favourite instrument, and enriched all the best performers on it. As soon, however, as the people became familiar with the former, the latter sank into disuse, and as the coinage of that period, according to Pollux, was made of leather, Apollo may be said to have *fleeced* Marsyas. The Pythoness at Delphi pronounced her oracles in verse, and Plutarch says, that her voice was accompanied with the flute. In the suite of the five Priests attendant on the chief Pythoness, were a great number of Musicians, instrumental performers, choirs of young people of both sexes, who danced and sang at the feasts of Apollo to the sound of flutes and lyres.

Music. Greek.

The Muses.

In their origin the Muses were merely a troop of singers and Musicians in the service of Osiris, or the great Egyptian Bacchus, and under the direction of his son Orus. The Greeks converted them into the daughters of Jupiter and Mnemosyne. If it be contended that they were the daughters of Pierus, King of Thrace, it is answered, that the lady Musicians of Osiris had been previously known in Thrace under the name of Muses, and that the daughters of Pierus, who imitated them, became thus distinguished by the same appellation.

Bacchus.

Bacchus is too celebrated in Musical History to be neglected in this place. Diodorus says, that he was the inventor of theatrical representations, and of Schools of Music, in which those who distinguished themselves obtained an exemption from military service. Hence, he says, that at a later period these Companies of Musicians have enjoyed many privileges. Certain it appears that the Dithyrambi, from which dramatic pieces originated, were as ancient as the worship of Bacchus, and there is scarcely room for doubt that the celebration of his mysteries were the groundwork of the splendour and illusion of the Theatre. Thus in Rome, as well as Athens, those who appeared on the stage singing, dancing, and reciting poetry for the amusement of the audience, went by the name of the *Servants of Bacchus*. Pausanias mentions a place in Athens sacred to the singing Bacchus. Hence it may be concluded that Bacchus was considered by the Athenians the God of song as well as of wine. In short, in all the orgia, processions, triumphs, and solemnities instituted by the Ancients in honour of that God, Music was especially used. The number of bassi rilievi in which Musicians accompany him with the lyre and flute, and Fauns and Satyrs with tambourins, cymbals, and horns, sufficiently prove the fact.

Pan.

Among the inferior Divinities Pan seems to hold the first rank as a Musician. The Egyptians, however, it must be observed, classed Pan among the superior Divinities. He is said to be the inventor of the syrinx, or pipes, which bear his name. The story of his pursuit of the Nymph Syrinx, which led to the invention of the instrument, and bestowed on it its Classical name, is too well known to be repeated here. Lucian represents Pan as the companion and counsellor of Bacchus. Shepherd, Musician, dancer, hunter, and warrior, Bacchus appears never to have been happy without him. He it was who superintended Bacchanals: but above all things, his touch and breathing of the flute enchanted the jolly God. After Pan come the Satyrs, whom, says Pausanias, the Ancients called Sileni, doubtless in relation to Silenus, the preceptor of Bacchus; Silenus has also the reputation of having been a good Musician, and the inventor of several Musical instruments. He, like Marsyas, had the boldness to challenge Apollo, but unlike him came off with a whole skin.

The Sirens.

The Sirens, who were celebrated singers on the coast

* *Hierog.* c. 109.

Music. Greek.

of Sicily, were placed amongst the terrestrial Divinities. Such was the enchantment produced by their singing, that the Argonautæ could escape them only by listening to the songs of Orpheus. They are said to have challenged, and to have been defeated in song by the Muses. Sicily was always notorious for its luxury and looseness of morals, and the whole story seems allegorically to relate that good sense and morality triumphed over immorality and dissipation.

Early celebrated Musicians.

Such was the state of Music in the primitive times of Greece under the government of the Gods and Demi-Gods; a period of simplicity and innocence in which all those who invented and taught mankind the useful Arts were deified after death, and regarded as the protectors of the Arts which they had introduced. We possess some little knowledge of the state of the Arts in these Heroic Ages; but as it would be difficult to speak with certainty on the Music of so remote a time, we shall do little more than record a catalogue of its celebrated Musicians, separating as much as possible their History from Fable and Allegory. All the principal early Musicians, Amphion, Chiron, Orpheus, and Linus, were equally Poets and real benefactors of mankind. On this subject the laborious and learned compilations of Fabricius and Burrette may be consulted by those who desire to know pretty nearly all that has been written on the subject; a very short abridgement will be sufficient in this place.

Amphion.

Amphion, the twin brother of Zethus, is the only Theban Musician whose name has reached us, his reputation, however, rests on but slender foundation. He had dethroned Laïus, father of the unfortunate Œdipus, and Homer merely says, that in order to secure his usurped crown, he built a wall round Thebes, having seven gates and fortified with strong towers. He mentions not a word of his miraculous skill in Music, nor of his having constructed these walls by his talent in striking the lyre. Pausanias, and after him Pliny, seem to think that his Musical reputation was gained by his alliance with the family of Tantalus, whose daughter Niobe he married. Both agree that he acquired the Art in Lydia, and that having brought it into Greece, he was esteemed the inventor of the Lydian mode.

Chiron.

Chiron, called by Plutarch the wise Centaur, was accounted the son of Saturn and Philyra. He was born in Thessaly among the Centaurs, that is, among those early Greeks who had the address to break and ride the horse. He was the inventor of Medicine, Botany, and Surgery. Dwelling in a cavern at the foot of Mount Pelion, his science and skill made it the most celebrated and frequented School in Greece. Xenophon furnishes an ample list of his pupils, to which Plutarch adds Hercules, who he says in the School of Chiron learned Music, Medicine, and Law. Diodorus, however, assigns the credit of this scholar to Linus; be this as it may, it indicates that ancient writers considered the qualification of Music necessary to their Heroes, nor could there be a greater reproach to a person in those olden times, than to say of him, *Nec fides didicit, nec natare.* But of all the pupils of the Centaur, none did him so much honour as Achilles. Apollodorus relates that a considerable portion of his time was occupied by Music, and that he employed it for the purpose of exciting him to great deeds, as well as to repress the impetuosity of his character. One of the paintings discovered at Herculaneum represents Chiron teaching his scholar the Lyre.

After Chiron, Linus and Orpheus appear to have been the chief Poets and Musicians of Greece, but which was the master which the scholar of the other, we have now no means of deciding. The authorities preponderate in favour of the priority of Linus. Diodorus, indeed, asserts positively that Cadmus taught the Greeks the use of letters, and that Linus instructed them in Poetry and Music. In another passage, he says that it was Linus who added the string *Lichanos* to the lyre. Some of the Ancients give him Hercules as a pupil. The story goes, that he succeeded so ill with that scholar, who was dull and obstinate, as to be provoked to strike him, which so exasperated the hero, that he seized his master's instrument, and knocked out his brains with it.

Music. Greek.

Linus.

Of Orpheus, whether before or after Linus, it may be affirmed the name is as illustrious as any which appears in the Grecian History. During the Argonautic expedition, which he accompanied, his reputation was established, and by the aid of his Musical abilities he was not only useful in keeping up the spirits of his companions, but rendered impotent the charms of the Sirens as we have above mentioned. With Music it is said he united the sublime Sciences, and was the first of the Grecians who planted them in his native Country. According to Pausanias he was the imitator of none, for before him, says that author, there was no other performer except on the flute. We shall not here dwell on the wonders his lyre achieved; to all are known the stories of his power over Cerberus, the Furies, and the Gods of Tartarus, and the beautiful fable of his endeavours to restore to Earth a beloved wife. The lyre which possessed such magic power, which softened the cruelty of savage beasts, and made trees and rocks attentive, was but an instrument of seven strings, of which the first Mercury invented four, in succeeding times two had been added, the seventh, which completed the second tetrachord, was superadded by Orpheus himself.

Orpheus.

Obloquitur numeris septem discrimina vocum. Virg.

One may perhaps attribute these miraculous effects on the rude people who listened to him to the novelty of the Art, to the beauty and imagery of the Poetry, and to the extreme sensibility of the hearers more than to the perfection of the instrument. The death of Orpheus appears to have been not less unhappy than that of Linus. The most likely account seems, that having excited the jealousy of the Thracian women by the power his talents exercised over their husbands, they lay in wait for him in the woods, and there murdered him, having previously hardened themselves by excess for the commission of the crime. Plutarch remarks, that in his time the Thracians were in the habit of reproaching their wives with this barbarity. Fable concludes this tragedy by dropping his lyre into the Hebrus, down which it was carried to the sea, borne on to Lesbos, and there deposited in the Temple of Apollo. Lucian states that this instrument was a considerable time afterwards purchased by Neanthus, son of the Tyrant Pythacus, who was silly enough to believe that he had only to touch it to induce the rocks and trees to follow him, instead of which the sounds he produced from it were so hideous, that the dogs of his neighbourhood seized him and tore him in pieces.

Homer's Musicians.

After the expedition of the Argonautæ, of which Orpheus in his youth shared the dangers, the most memorable epoch in the Grecian history is the siege of Troy, of which Homer is the only Historian as well as Poet. He has preserved the names of several Musi-

Music. Greek. and Instruments.

cians, and they are the only memorial we have of the Art in Greece, during the long period extending from the time of Orpheus to the celebration of the Olympic Games. The instruments mentioned by Homer in the *Iliad* and *Odyssey*, are the lyre, the flute, and the syrinx or pipes of Pan. The lyre is always called *φόρμιγξ*. *κιθάρα*, or *χέλυς*, Aristophanes being the earliest Greek Poet who calls it *λυρα*. The instruments above mentioned were from that period employed in sacrifices and religious ceremonies. Homer mentions the trumpet as used in war, but this instrument, though common in his time, was probably unknown to the Greeks at the siege of Troy. Music appears to have been inseparable from the banquets and public ceremonies which he describes, there are none in which Music and Poetry are not mentioned. He speaks of Music as used in private life, for he describes Achilles and Paris consoling themselves with the lyre; the first on the fatal affront which he avenged by withdrawing himself from the army, the latter for the disgrace he had incurred in flying from the field. Among the Musical Poets named

Teiresias. in his Works occurs Teiresias, a name celebrated in Grecian History, who in recompense for the loss of his eyes was endowed with the gift of Prophecy. According to the ancient practice he united Music, Poetry, and Prophecy with the sacerdotal function: he was the person consulted by Ulysses in obedience to the command of

Thamyris. Circe. Thamyris is by Homer called *κιθαριστής*, one who sang to the lyre. Plutarch, in his Dialogue on Music, says that he was born in Thrace, the Country of Orpheus, and that his voice, in sweetness and quality, surpassed those of all the Poets of his time. It appears that he had a contention with the Muses as to skill, and the punishment for his boldness was blindness, loss of voice, and of the power of touching the lyre, and Homer notices the story in his Catalogue of the ships, *Iliad*, book ii. v. 594. Diodorus says that Thamyris was the pupil of Linus; Suidas, however, maintains that he was eighth in order of the Epic Poets who preceded Homer. Clemens of Alexandria makes him the inventor of the Dorian mode, but this would seem to have been in use before his time, having been imported

Demodocus. to Greece by the Egyptians. With Homer, Demodocus seems to have been in the highest esteem as a Poet and Musician. At the Palace of Alcinous he announces his arrival through the medium of a herald, and seats him on a splendid throne. In short, the VIIIth Book of the *Odyssey* is so filled with the praises of this personage, that some have thought the Poet was painting the picture of himself. The remaining Musician whom Homer

Phemius. has celebrated is Phemius. Eustathius supposes him to have been the particular friend of Homer, and his instructor. If so, the master will live longer by the eulogium of his pupil than by his own proper merits, which have not reached us. The singing of the Poetry, not less than the verses themselves, seem to have been improvised, and to have resembled the effusions nearer our own time of the Celtic Bards and the Scalds of Iceland and Scandinavia. The Poets were strollers, but respect for their talents insured them a warm reception from the Palace to the lowest hut in which they sought an asylum.

Hyagnis. Hyagnis and Olympus, celebrated in History, were before Homer's time. The former, a Phrygian by birth according to the Arundelian Marbles, flourished 1506 years before Christ. He was the inventor of the Phrygian flute and mode, of the airs or nomes which were sung in honour of the Mother of the Gods, of Bacchus, Pan, and the other Divinities of the Country. The latter is frequently mentioned by the Greek writers. Two great Musicians bore this name; the earliest, who was a native of Mysia, was the most celebrated, and was a pupil of Marsyas. He added to the power of Music by the introduction of the ancient enharmonic system. He is celebrated by Plato, Aristotle, and Plutarch for his Musical and Poetical talent, as a person whose melodies remained even to their several times. Burney has well observed, that Religion is the only medium by which Music can be perpetuated. And it may be presumed that the airs which were common in Temples at the time of Plutarch, were to him, in point of relative antiquity, what the Gregorian tones of the Roman Catholics are to them in the present day. Plato describes the Music of Olympus as animating; Aristotle as filling the soul with enthusiasm; Plutarch says, that for simplicity and effect no Music then in use surpassed it. He further mentions its powers over Alexander, and that to his talent for Music he joined that of Poetry. His elegies and plaintive airs accompanied by the flute, appear to have been so moving and pathetic, that Aristophanes, at the beginning of his Comedy of the *Knights*, in which he introduces two Generals, Demosthenes and Nicias, as valets complaining of their master, puts into their mouths the words, "Let us weep and lament, like two flutes playing an air of Olympus."

Music. Greek. Olympus.

Thaletas. After Hesiod and Homer, the next Poet and Musician was Thaletas of Crete. He superadded the accomplishments of Philosopher and Politician to his other talent, so that Lycurgus passed into Crete to avail himself of his advice in founding his Government. His Odes, according to Plutarch, enforced maxims of harmony and concord, to which the sweetness of his voice and melody gave additional force. Plato, Porphyry, Athenæus, and the Scholiast on Pindar speak of his talents, and mention melodies of his composition. There was another Thaletas, also of Crete, who flourished long after the time of Lycurgus, reputed to have cured the Lacedæmonians of the Plague by his performance on the lyre, and whom Plutarch makes a contemporary of Solon.

Archilochus. Archilochus is esteemed the inventor of dramatic melody of song, applied to declamation, with us called recitative. According to Plutarch he adapted his Music to his Iambic verses in two different ways. Some he recited with an accompaniment at the end of the passage; others with the voice as it proceeded and in the same melody. The latter method was in the end adopted by the Tragic Poets. If Plutarch may be considered a competent witness, none of the Poets of antiquity contributed so much as Archilochus to the progress of Poetry and Music. Herodotus makes him contemporary with Candaules and Gyges, Kings of Lydia, 724 A.C., but modern Chronologists assign him a later period. He was born at Paros, one of the Cyclades. We do not intend to bestow any observations on the strange events in the life of Archilochus, his Musical career is all that concerns us. Plutarch attributes to him the rhythmical arrangement of Iambic trimeters, the sudden transition from one rhythm to another of a different genus, and the method of accompaniment to them on the lyre. Melody was at that period strictly regulated by the measure of the verse, the varying structure of which necessarily required variety of melody. Heroic or hexameter verse seems exclusively to have been practised by the ancient Poets and Musicians; they were unacquainted with the method of passing from one rhythm to another which Lyric

Music. Greek.

Poetry required. If Archiloehus, therefore, was the inventor of this mixture, he is entitled to be considered the inventor of Lyric Poetry, a species quite distinct from all Poetry that preceded him. He is generally reckoned among the first conquerors of the Pythian Games. His Hymn in honour of Hercules obtained the applause of all Greece; on singing it at the Olympic Games, he received the crown; and such was the estimation in which it was held, that it was the practice to sing it thereafter in honour of those successful competitors who were not fortunate enough to have any Poet to write and compose for them on the occasion.

Tyrtæus.

Tyrtæus, the Athenian General, was a Musician, and History has recorded him as celebrated for the composition no less than the execution of his airs and military melodies. Notwithstanding the austerity of their manners, the Lacedæmonians acknowledged the power of Music so far as to call in Tyrtæus to their aid, and their victories are attributed to his Musical exertions at the head of their army. They rewarded him with the rights of citizenship, and to the latest period of the Republic were accustomed to use in war the Music which he had introduced among them.

Terpander.

Terpander, whose date and birthplace are unsettled, was, according to the concurrent testimony of the Ancients, another celebrated Musician. The Arundelian marbles indicate his existence 671 A. C. Some have assigned to him the addition of three strings to the lyre, which previously possessed but four. Be that as it may, it seems that he was the first who introduced them to the Lacedæmonians, and thus gave great offence; they were, one would suppose, little better than Savages, for through the Ephori, they fined him for the innovation. Plutarch, who mentions this circumstance in his Dialogue on Music, says, that Terpander quelled a disturbance among this people by the persuasive sounds of his voice and lyre. The circumstances appear to contradict each other, but they may be reconciled by the supposition of his having, after a time, overcome the prejudices of so rude a nation. Terpander was not less celebrated for his instrumental talent on the flute and lyre than for his compositions, inasmuch as from the marbles before cited, as well as from the testimony of Athenæus, it appears that he obtained the first Musical prize at the Carnian games instituted at Sparta to deprecate the anger of Apollo for the murder of Carnus, one of his Priests, which the Dorians had perpetrated. In short, if we may rely on Plutarch, no other testimony in favour of Terpander is required than the simple statement that his name was on the records of the Pythian Games as the successful competitor in four successive contests.

Grecian Games.

In the Grecian Games, Music occupied a considerable portion of the ceremonies: independent of the combats being accompanied by the sound of instruments, and of the competition in dramatic exhibitions, wherein the dialogue was sung and accompanied by the orchestra, there were especial prizes for Music. We will glance at these Games as connected with the Science.

Olympic Games.

For a considerable time Music was subordinate to the other exercises at the Olympic Games. It was not until the XCVIIth Olympiad, that a prize was awarded to the best player on the trumpet, an instrument which, till then used only as a signal for troops, had been brought to a state of considerable perfection. Burney observes, that it was probably used in accompanying the voice, and equally so that it was the first among the ancient instruments upon which a solo was performed. Prizes were adjudged in these Games also to the flute and the lyre, and used to be contested for down to the abolition of the Games themselves.

Music. Greek.

Pythian Games.

The Pythian Games, instituted to record the victory of Apollo over the serpent Python, were, according to Pausanias, in their origin merely Poetical and Lyrical competitions. The prize was adjudged to the best composer and singer of a Hymn in praise of Apollo. Eleutherus is recorded among the earliest victors as having been successful for the prize by the power and sweetness of his voice, although the Hymn he sang was the composition of another. Hesiod is said to have been unqualified to compete, because he could not accompany himself on the lyre. Homer also was told by the Oracle that he was an unqualified person, because his blindness and infirmities disabled him in too great a degree from singing and playing on the lyre together. After the Crissæan, or Sacred war, the Games were celebrated in the second year of each Olympiad. At this period, 591 years before Christ, two other prizes were added to those already named, one for those who sang the best to a flute accompaniment, the other for those who without singing played on the instrument with most feeling and taste. Here begins the separation of Music from Poetry, till then indissolubly united. Sacadas of Argos is handed down as the first victor on the flute alone. In the VIIIth Pythiad, 559 years before Christ, a crown was decreed to the best performer on a stringed instrument without the voice. The prize in all the Pythic contests was a crown or wreath of laurel, in memory of the plant into which Daphne had been transformed; at a later period it was interspersed with the apple, a fruit consecrated to Apollo. Strabo, in speaking of the different sorts of contests established in the Pythian Games, mentions a peculiar species of composition sung in the manner of a Hymn to the honour of Apollo, and accompanied by instruments. It was called the Pythian Nome, or Cantata, (Νόμος Πυθικός,) and was a very long piece consisting of five parts, all containing allusions to the victory of the God over the serpent. The first part, called the prelude, described the preparation for the combat; the second, the onset, or beginning of the contest; the third, the heat of battle; the fourth, the song of victory, or the insults of Apollo over Python, consisting of iambics and dactyls; and the fifth and last, the hissing of the dying monster. Pausanias relates, that this cantata or nome was invented by Sacadas, a Poet as well as Musician, and performed first by him at Delphi. Of this Sacadas, we have the testimony of Pausanias and Plutarch, that Pindar thought highly of him, and, in some Works now lost, paid a tribute of praise to his Lyric and Elegiac Poems. The following are the principal Musical Poets who obtained celebrity at the Pythian Games. Alcman, a native of Sardis, flourished 670 years before Christ. It is said that in his youth he was a slave at Sparta, but that his good disposition and genius acquired for him his freedom as well as a distinguished rank among the Lyric Poets. He played with consummate art on the lyre, and excelled in singing his Poetry to a flute accompaniment, in the composition of Music for dancing, and, above all, in strains of love and gallantry. He was one of those great Musicians whom the Lacedæmonians called to their assistance on state occasions, to animate the troops, and guide them in their evolutions. Alcæus, born at Mytilene, flourished, according to the Chronicle of Eusebius, in the XLIVth

Sacadas.

Alcman.

Alcæus.

Music. Greek.

Olympiad, or 604 years before the Christian Era. He abandoned military glory for that which he obtained in the service of the Muses, after having, like Archilochus before him and Horace after him, fled from a field of battle in which he lost his buckler and his honour. He excelled equally in Poetry and Music, and composed Odes, Hymns, and Epigrams. His Poetry, sometimes threatening tyrants, sometimes in the plaintive strain of a lover, was, according to Quinctilian, chaste, concise, magnificent, and sententious, and approaching so near the standard of Homer, that Horace has bestowed on him a golden plectrum.

Et te sonantem plenius aureo,
Alcæe plectro.

Sappho

Alcæus was contemporary and native of the same Country with Sappho. That Poetess, whose adventures, and the fragments of whose Poetry are too well known to require particular mention here, is recorded by Aristoxenus and Plutarch to have been the inventress of a new Musical system, called the Mixolydian Mode. The Lydian was the highest in respect of scale of the five original Modes, and its lowest note, or added (προσλαμβανόμενον) string, seems to have corresponded with our F ♮ on the fourth line in the bass or F clef. The Mixolydian, invented by Sappho, is usually considered to have been a half note higher. This Mode afterwards received the addition of a minor third above, taking thence the name of the Hypermixolydian, and thence the fourth above, with the appellation of the Hyperlydian Mode. Plato, in the IIId Book of his *Republic*, complains of the extent of the scale used, and wishes Music to be restrained within more moderate limits than those employed by Sappho. But we shall hereafter have to speak a little more at large on this subject, when we consider the origin of the Ecclesiastical tones.

Mimnermus.

Towards the beginning of the VIth Century before Christ, Mimnermus, according to Plutarch, became celebrated for a *nome* on the flute, called Cradias, at that time in common use at Athens at the procession of the expiatory victims. This Mimnermus was a Lyric Poet and Musician of Smyrna, and contemporary with Solon. To him Athenæus attributes the invention of the pentameter verse, and his Elegies were in so great esteem among the Ancients that Horace prefers them to those of Callimachus. But few fragments of them remain.

Next in chronological order is Stesichorus, a Sicilian, and native of Himera. His original name, Tisias, was abandoned in consequence of the alterations introduced in the dithyrambic chorus. Simonides flourished about the same period; he was born at Ceos, one of the Cyclades, about 538 years before our era, and died at the advanced age of ninety. Pliny attributes to him the addition of an eighth string to the lyre, but the Learned are not agreed on this subject.

Pindar, whom to name is to secure attention, was born at Thebes, in Bœotia, about 520 years before Christ. His father, a Professor of the flute, gave him his first Musical instruction. He was afterwards placed under the care of Myrtis, a woman distinguished for her Lyric Poetry. Under a course of instruction with her, he found Corinna, to whom, Plutarch says, the young Pindar was more indebted for his progress than to their joint mistress herself. He was afterwards the pupil of Simonides, then well stricken in years. Pindar distinguished himself in all his contests in Music and Poetry, then so common in Greece. He competed with Myrtis and Corinna, of whom the former may be said to have been his Musical mother, and the latter his sister in the same Art. The former he excelled, but the latter was five times successful against him. Pausanias hints that the personal attractions of Corinna, of whose Works no fragment is known to us, had some influence on the arbitrators. His only pieces that have reached us are compositions in honour of the conquerors at the Olympic, Pythian, Nemæan, and Isthmian Games. He died when eighty-six years old, and his fellow-citizens erected in the Hippodrome at Thebes a monument to his memory, which existed in the time of Pausanias. Alexander, when he took that city, respected his house and descendants. The Lacedæmonians paid similar tokens of respect when they ravaged Bœotia and burned its Capital; and in so great esteem did his memory continue, that Plutarch says, in his time the best parts of the sacred victims were reserved for the use of his descendants.

Music had now arrived at an extraordinary pitch of perfection. All the cities of Greece, not excepting Sparta itself, were led by its charms; and Plutarch informs us, in his *Life of* the Spartan *Lysander*, that the Musician Aristonoüs, six times a successful competitor as a Citharædist in the Pythian Games, flattered that Chief by telling him that if he ever gained another victory, he would be content to be proclaimed his disciple and servant. This compliment was paid after Lysander had taken the city of Athens, beaten down her walls, and burned the fleet in her harbour *to the sound of flutes*, in the XCIVth Olympiad, 404 years before Christ.

High esteem for Music in Greece.

We receive from ancient authors incontestable proofs of Musical contests in the Games down to the epoch of their abolition, after the establishment of the Christian Religion. It is sufficient to mention the laurel won by Nero at the Pythian Games, sixty-six years after the Christian Era, and the two Pythian victories, amongst a number of others recorded in the Arundelian Marbles gained by C. Ant. Septimius Publius, a flute-player in the time of the Emperor Septimius Severus. We will conclude by observing that the Pythian Games in honour of Apollo were celebrated at Miletus in Ionia, at Magnesia, Sida, Perga, and Thessalonica, as well as at Delphi, and that in each of these places Music and Poetry were the subjects of principal contest.

Nemæan Games.

The Nemæan Games received their name from Nemæa, a village of Arcadia, and were of so great antiquity that the Ancients themselves are not agreed upon their origin. According to some, they were instituted in honour of Archemorus by the Seven Chiefs against Thebes; others say they were founded by Hercules to compliment Jupiter after the victory over the Nemæan Lion. The display was very similar to that in the Olympic Games, and certain it is, on the authority of Plutarch, that Music was one of the Arts in highest esteem. In his *Life of Philopœmen* he records, that he entered the Theatre, after the celebrated victory of Mantinæa, during the Nemæan Games, whilst they were contending for the Musical Prize. The Musician Pylades, of Megalopolis, began to sing to the lyre an air composed by Timotheus, the words of which appeared so applicable to Philopœmen, that all eyes were fixed on him, and the song was interrupted by public applause and acclamation.

Pylades.

Timotheus.

Timotheus, another celebrated Poetic Musician, was born at Miletus, 446 years before Christ. He excelled not only in lyrics and dithyrambics, but also in the art of playing on the lyre. According to Pausanias, he added four strings to the seven already in use on that instrument, though Suidas says, that even before his time it had nine, and that he added only the tenth and

Music. Greek.

eleventh. Be this as it may, it appears his improvements gave great offence at Sparta, and he was ordered to detach from his instruments the additional strings and revert to the original number. He was, moreover, banished the city for his refinements. We have mentioned in a former page a similar treatment of Terpander by these unmusical Spartans. The Lacedæmonians appear, however, to have admitted the use of the enharmonic genus on account of its simplicity, but to have disapproved of the chromatic as too difficult and refined: a fact affording proof of the existence of two species among them, whereof the more ancient appears to have been remarkable for its simplicity and dignity. Timotheus died at Macedon, at the age of ninety-two years, and before the birth of Alexander the Great. He is not to be confounded with the celebrated flute-player, who by his Art raised the passions of that Monarch, and as easily allayed them. He was a native of Thebes.

Isthmian Games

The Isthmian Games received their name from the Isthmus of Corinth whereon they were celebrated. In these, as in the former, Music and Poetry bore a principal part. But in respect to the History of the Art which is the subject of this Essay, they present little that is remarkable. We cannot, however, close the History of Greek Music without some allusion to the celebrated Panathenaic Games of Athens. There were two festivals bearing that name, and of so great antiquity as to be carried back to the time of Orpheus. The greater Panathenæa were celebrated every five years, the lesser every three years, though some authors say the latter were solemnized yearly. Among the prizes distributed were especially those for Poetry and Music. The tale that these Games were originally founded by Pericles, however his taste and love for the Arts might justify such a conjecture, is sufficiently contradicted by the testimony of Plutarch, who examined the registers of their celebration, and carried them back to a much more remote period. In these Games, players on the flute and lyre exercised their talents on subjects selected by the Directors of the ceremonies, and whilst Athens enjoyed freedom and independence, the names of Harmodius and Aristogiton wanted not a Poet or Musician. The flute, always a favourite instrument at Athens, probably because its invention was attributed to Minerva, attracted cultivation from the prizes assigned to performers on it at these Games. Although Aristotle speaks of the flute at its earliest introduction as an unworthy instrument, and of little account, yet after the invasion and defeat of the Persians, its use had become so universal, that unacquaintance with its use was a reproach to a well-bred person. The Athenians Callias and Critias, Archytas of Tarentum, Phylolaus and Epaminondas, were excellent flute-players. In short, Music was in so great esteem at Athens in the time of Pericles and Socrates, that Plato, as well as Plutarch, have thought it necessary to leave a record of the persons from whom those two celebrated personages received their instructions in that Art.

Panathenæa.

The Flute.

Damon.

Damon the Athenian was the instructor in question. Socrates calls him his friend, a distinction sufficiently flattering to his memory. He was the pupil of Agathocles, who, besides the qualities which, in Plato's opinion, peculiarly fitted him for the instruction of youth, cultivated also that branch of the Science which more particularly related to time and measure, and thus attained a more than ordinary reputation in the eyes of that Philosopher. Pericles, who was a patron as well as an enlightened judge of the Arts, was desirous to enlist the Muses in all public amusements. He not only regulated the mode and augmented the number of the Musical and Poetical contests, but he also built the Odeon, a building appropriated to the daily practice of Poetry and Music, previous to their production at the Theatre. To Pericles the Athenians were also indebted for the settlement amongst them of Antigenides, a highly celebrated performer on the flute, and one of the best Musicians amongst the Ancients. According to Suidas, he was a native of Thebes in Bœotia, whose inhabitants were famous as performers on that instrument. He was a pupil of Philoxenus, of the Island of Cythera, whose Lyric Poems are entirely lost. The pupil, in his youth, went about with the master, and accompanied on the flute the airs which the latter composed to his Poems. Reared in such a school, it is not surprising that the former, in his turn, met with encouragement from the highest classes, and he accordingly was intrusted with the education of Alcibiades, the cousin of Pericles. Aulus Gellius tells us, that Alcibiades, however, was disgusted with the instrument, as Minerva had been before him, and by discarding it brought it into disesteem among the young nobility of Athens.

Music. Greek.

Pericles.

Antigenides.

According to Athenæus, Antigenides was the Musician who played the flute at the nuptials of Iphicrates, the Athenian General, who married the daughter of Cotys, King of Thrace. Plutarch assigns to him the honour of having stimulated Alexander by his Music, but the reputation seems more likely to have belonged to Timotheus. Notwithstanding his success and celebrity, this great Musician looked upon public patronage as a very precarious possession, and never allowed himself to be puffed up by the applause of the multitude. He impressed similar sentiments on his pupils, and with the view of consoling one of great merit, who had received but little encouragement from applause, he encouraged him by saying, "The next time you play shall be to myself and the Muses." He introduced several improvements in the instrument by increasing the number of holes, and thereby extending its compass. Theophrastus, in his *History of Plants*, informs us of the particular season at which Antigenides cut the reeds for his flute, in order to procure a quality of tone suitable to the refinements which he introduced in the Art; and Pliny has translated the passage. (xvi. 36.) Antigenides appears to have had a portion of the coxcomb about him, for he extended his regulations beyond the instrument, to the dress of the performer. For instance, it appears that he was the first who appeared in public in Milesian slippers and a robe of saffron colour. Relative to him, Plutarch records a joke of Epaminondas, who, on being informed that the Athenians had sent troops into the Peloponnesus with new arms, inquired, "Whether Antigenides had been disturbed when he saw new flutes in the hands of Tellis?"

Dorion.

Dorion was the contemporary and rival of this master. Plutarch mentions him as having made many changes in the Music of his time, and as being at the head of a party which opposed another under Antigenides. Though greatly extolled by Athenæus, there is ground for believing that his good companionship did more for his fame than his skill as a Musician. A circumstance mentioned by Plutarch in his *Life of Isocrates*, will give our readers some notion of the abundance of Flute-Music at Athens. The Orator (Isocrates) was the son of Theodorus, a manufacturer of

Music. Greek.

flutes, who acquired sufficient fortune by his business not only to bestow on his children very superior educations, but to be able to bear one of the greatest burthens to which an Athenian citizen was liable, namely, the support of a choir for his Tribe or Ward on all public occasions. The wealth, however, of Theodorus does not appear so extraordinary, when it is known that the great sum of three talents, equal to upwards of £500 sterling, was given for a flute by Ismenias at Corinth. Now, though this Ismenias, of whom Pliny and Plutarch mention some ridiculous tales, may have been a silly fellow, yet even allowing for extravagance, it shows that a good instrument found a ready purchaser and a large price. Montfaucon may be consulted to prove, from inscriptions on antique marbles, the great estimation in which the instrument was held. At Athens the flute-players attached to the sacrifices were nominated at the same time with the State Officers; they were almost as much esteemed as the Priests themselves, having a share of the flesh of the victims, and the proverb of Αὐλητοῦ βίον ζῆν was applied to a man who lived chiefly at the tables of others.

Clonas.

From the list of celebrated flute-players the name of Clonas, according to Plutarch, deserves to be drawn forth; he was a contemporary of Terpander, and the first who composed *nomes* or airs for the flute.

Polymnestes.

Polymnestes, a native of Colophon in Ionia, composed as well for the flute as he played on the lyre, which was not common among the Ancients. He is reputed to have been the inventor of the Hypolydian Mode, a semitone below the Dorian, and the lowest of the five original Modes; it was, perhaps, the first extension downwards of the scale as the Mixolydian was upwards.

Telephanes.

Telephanes of Samos was distinguished in the time of Philip of Macedon, not only by his talent on the flute, but by being honoured with the friendship of Demosthenes. In the time of Pausanias, a monument still remained to his memory between Megara and Corinth erected by Cleopatra, Philip's sister.

Female performers on the flute. Lamia.

The practice of the flute extended to the fair sex; and among the celebrated female performers must be recorded the name of Lamia, whose proficiency on it, added to her wit and beauty, caused her to be considered a prodigy. Plutarch, Athenæus, and others, speak of the honours she received throughout Greece. She is mentioned by Plutarch in his *Life of Demetrius*, as having so wrought upon that Prince in favour of the Athenians, that they rendered her divine honours, and dedicated a Temple to her under the name of Venus Lamia.

Extension of the scales.

Whilst Instrumental Music was confined to the accompaniment of Poetry, its limits were restricted within narrow bounds; but in proportion as the Musician divested himself of the laws of metre and prosody, the strings of the lyre and the holes of the flute increased in number. These additions brought with them new, varied, and complicated movements and intervals, and their consequent extraordinary modulation. This change, whereof Aristotle bitterly complained, was after his time carried to excess. The Philosophers raised their voices against the innovations, which they considered detrimental to the morals of the people; who, never disposed to sacrifice the pleasures of sense to those of intellect, listened to the novelties with rapture, and bestowed the utmost patronage upon the composers; so that Music, which had at first been the humble companion of Poetry, finally became its sovereign mistress. Plato, Aristoxenus, and Plutarch complain not less than Aristotle, of the corruption and decay of Music among the Greeks. The former considered the Art as fitted only for Religious purposes; hence he condemned its use in public feasts, in the Theatres and as a domestic amusement. The complaint of Aristoxenus, as he was a sound Musician, would be entitled to some consideration, if it were not probable that the success of his rivals had some tendency to bias his judgment. Plutarch also, himself a Priest of Apollo, must be read on this point with caution. Athenæus, a more independent person, observes, that notwithstanding all that had been written on the subject, the Art in Greece in his time owed its principal attractions to the Theatre. Grecian Music, like the other Arts, had its infancy, maturity, and decay. After the conquest of Greece, neither her actions nor her works of Art indicated her former greatness; yet Music continued to be cultivated under the Roman Emperors. It has always been one of the solaces of the Greeks even under the dominion of the Turks; but unless their Music at present be essentially different from what it was in the periods whereof we have been treating, nothing could have been more barbarous or less likely to please a modern ear, than ancient Greek Music. But notwithstanding all that the Learned have written on the subject, so much is the Art an object of sense, and so momentary is its influence, that however clearly the technicalities may be explained, the effects on the organ will remain in profound obscurity. Who would be able to understand the full powers of Beethoven or Mozart a century hence, should modern Instrumental Music fall into decay in the interim from want of competent performers?

Music. Greek.

Decline of Grecian Music.

Roman Music.

Although the Romans were chiefly indebted to the Greeks for their Arts and Sciences, yet (since no nation, however uncivilized, has ever yet been known to be entirely without knowledge of some rude sort of Music) it appears that at a very remote period they were in some measure acquainted with the Art, perhaps formed on Etruscan models, for Religion and War. Their connections with Etruria were long antecedent to those with Greece; yet as it must be remembered that the Arts of the former Country were very similar to those of the latter, it might be that the Music of which we speak came from Greece through Etruria. Strabo and Livy expressly state that the Roman public Music was imported from the Etruscans. More than one author has seriously found an early origin for the power of the modern *Improvvisatori* of Italy in a passage of Dionysius Halicarnassensis, (lib. ii.) which describes the first Roman Triumph, (that of Romulus over the Cæninenses,) when the army in three divisions sang in honour of the Gods, and moreover celebrated the exploits of their General by extempore verses. Burney, with much solemnity, says on the passage, "This account affords a very venerable origin to the *Improvvisatori* of Italy, as the event happened in the fourth year of Rome, 749 years before Christ and fourth year of the seventh Olympiad." Dionysius remarks, that the Roman Prætors annually celebrated Games in honour of Cybele, according to the Roman and not the Grecian custom, that her statue was with great solemnity paraded round the city to the sound of cymbals, followed by performers on the flute playing airs in her honour. These are the

Roman Music. Origin.

Music. Roman.

only traces to be found in Ancient History of Music originally Roman, or at least of Music that does not appear to have been brought from Greece.

The Salii.

The Salii, instituted by Numa, danced and sang Hymns to the praise of the God of War. Armed whilst engaged in the dance, sometimes, says Dionysius, they moved together, sometimes by turns, and were accompanied in the dance by certain Hymns, according to the custom of the Country. Their appellation was derived from the violence of their action, *à saliendo*, and conveys therefore but a mean notion of the refinement of their Music. Servius Tullius, who divided the people into classes and centuries, directed that two centuries should entirely consist of trumpeters, horn-players, and those whose duty it should be to sound the charge. This was 600 years before Christ, and proves the early importance of military Music among the Romans. By the laws of the Twelve Tables, 150 years afterwards, the master of the ceremonies at funerals is to provide ten flute-players, and the praises *honoratorum virorum* are to be proclaimed, accompanied with mournful songs to the sound of the flute.

Epithalamia.

The Hymeneal Songs, which were in after-times changed and refined down to Epithalamia. were, as we learn from Servius, Macrobius, and Horace, in their origin indecent and obscene compositions, called Fescennine verses, which young people sang before the apartments of the new-married couple. Livy (vii. 2.) gives us a tolerable sketch of the History of the Roman Drama, from which, as in Greece, Music was inseparable. The account is sufficiently interesting to deserve extraction. "This year (364 n. c.) the Plague continued to rage, and in that succeeding, under the Consulate of C. Sulpicius Peticus and C. Licinius Stolo. During this period the most memorable circumstance was the

Lectisternium.

celebration of a public feast called the *Lectisternium*, to obtain the favour of the Gods, being the third of the kind that had been celebrated since the building of the city. The authorities, however, finding that the violence of the pestilence neither abated through human care nor divine assistance, and being moreover superstitious to a high degree, among other modes tried to appease the incensed Deities, are said to have instituted the

Dramatic Pieces.

Ludi Scenici, amusements entirely new to a warlike people, who previously to that period had none but those of the Circus. These dramatical exhibitions were, like the beginnings of most other things, inconsiderable, and borrowed from foreigners; inasmuch as actors were brought from Etruria, who, without verses or action expressive of them, danced not ungracefully in the Tuscan fashion to the flute. The Roman youth in process of time imitated these dancers, mingling raillery with their rude verses, and gestures correspondent with the import of the words. These Plays thus received at Rome were improved and refined by repeated performances. The Roman actors acquired the name of *Histriones* from the Tuscan word *hister*, signifying a stage-player. The dialogue no longer continued to consist of unpremeditated and coarse jests in rude verses like those of the *Fescennini*, but of Satires accompanied by Music set for the flute, and recited with proper gesticulation. Some years afterwards Livius Andronicus first ventured to abandon Satires, and wrote Plays with a regularly connected plot. Satires, which had afforded subjects of coarse mirth and laughter to the people, were thus reduced to form, and Acting gradually became an Art. The Roman youth now left it in the hands of Players by profession, and, as formerly, farces were acted at the end of their regular pieces. These Dramas soon after obtained the name of *Exodia*, and were usually interwoven with the Atellane Comedies; pieces originally borrowed from the Osci, and always performed by the Roman youth, who did not allow them to be disgraced by professed actors. Hence it was a rule that those who performed in such pieces were not to be disgraced from their Tribe, but were to serve in the army as though they had never appeared on the stage."

Music. Roman.

Connection with Religion.

The circumstances under which these pieces were first represented show that the Theatrical Games among the Romans were of Religious institution, as they were among the ancient Greeks, and the importance of Music in Religious ceremonies is confirmed by another curious passage in Livy, (ix. 30.) where he relates the effects of the resentment of the Roman Musicians, who commonly played during the sacrifices, and who imagining that they were affronted, withdrew in a body from the city to Tibur. The Tiburtines entreated them to return, but the Musicians were inflexible, and stratagem was obliged to be used. Different persons besought them on a certain festival day to come and assist at the celebration. Being plied with wine beyond moderation, they fell asleep and became insensible, and were then placed on cars, and carried back to Rome. There they passed the rest of the night in a public part of the city. In the morning, when the fumes of the wine began to be dissipated, they were surrounded by the people, who appeased them by granting them the privilege of parading the city three days every year in the costume of their profession, with liberty to play on their instruments, and to give themselves up to every species of licence and excess. This anecdote proves the importance attached to Music in Religious rites, not less than the licentious dispositions of the Professors of the Art. Music was long confined to sacred use, and it was not till after the defeat of Antiochus the Great, King of Syria, that Musicians (*Psaltriæ*) were introduced at Rome to play in the Asiatic fashion at festivals and private banquets.

Etruscan Music.

In respect to Etruscan Music, the published collections of the antiquities of Etruria sufficiently show that its ancient inhabitants must have been much attached to the Art. All the different sorts of Musical instruments which are found on Grecian sculptures are equally to be seen on Etruscan vases. If the Romans lacked genius in the invention of the Arts, they certainly had the good taste to admire and imitate those of the Greeks after conquering them. Like them they had Public Games, combats of *athletæ* and Chariot-races. Their Generals, when honoured with a Triumph, entertained the people with Spectacles, in which Music had a conspicuous share, especially on the last day. Cæsar gave the first *Naumachia* on the Lake Fucinus, near Rome, which is said to have been attended by ten thousand Musicians of both sexes, who sang and played on instruments; and at his funeral, the Musicians in attendance threw their instruments on the pile. Music declined under Augustus, who probably cared little about it. In his time clapping of hands and whistling was introduced at the Spectacles. He had, however, a good voice, and at a late period of his life he employed a Musician to teach him to regulate it so that it might be more advantageously used in his Speeches. At his death, the Senate and principal citizens received his body without the gates of the city, and

Introduced at Rome.

Decline under Augustus.

Music. Roman.

Under Tiberius.

conducted it to its sepulture singing mournful verses to his memory. After his decease Tiberius banished the Comedians and Musicians; Caligula recalled them; Claudius also encouraged them, but he preferred Gladiatorial fights to Theatrical exhibitions.

Nero.

Nero restored Music to all its former splendour, and cultivated it himself like a Professor; it has been affirmed that he poisoned Brittanicus merely because he had a more agreeable voice than his own. He passed the greatest portion of his time in receiving lessons from Torpus, the most skilful harpist and lyrist of his time, whom he lodged in his palace. His first appearance on the Theatre was at Naples, which city he entered dressed as Apollo, and attended by the best Musicians of his time and by a crowd of his officers in a thousand chariots. Scarcely did he tread the stage before an earthquake shook the Theatre, but with the greatest coolness and presence of mind he continued his song, notwithstanding a considerable portion of the audience fled with precipitation. So delighted was he with the applause received at Naples, that he preferred it to every other city. A crowd of Musicians from all parts soon arrived to judge for themselves of the talent of the Emperor. Of these he retained five thousand in his service, and appointed for them a distinguishing uniform and a suitable salary. At his return from Naples the people were so impatient to see him on the stage, that he stopped a day there at their earnest supplication, to indulge them with the sound of his celestial voice. He was received with great applause, and thereafter made no difficulty of playing at Rome, and even of receiving payment for his performance, esteeming every thing at a high rate which was obtained through Music. Encouraged by this success he proceeded to Greece to contend for the prize at the Olympic Games, which he obtained by bribing his rivals and judges. In his journey afterwards through Greece, he every where challenged the most skilful Musicians, and, as may be supposed, always came off conqueror, as well on the lyre and harp as in singing. At his return from Greece to Naples, he entered that city, and afterwards Antium and Rome, by breaches in the walls of each, as a conqueror at the Olympic Games, bearing with him in triumph as the spoils of an enemy, eight hundred prizes which he had extorted in his Musical contests. By the wheels of the same chariot at which Kings conquered by the Romans had walked, and with similar pomp and solemnity, now trod through the streets of Rome Diodorus, a celebrated Grecian lyrist, with other distinguished Musicians. One hardly knows which most to wonder at, the vanity of Nero, who believed himself in possession of the first-rate talents, superior to those of the Professors; or the fulsome adulation of the artists in publicly acknowledging their defeat by the Emperor. The care which Nero bestowed on his voice, as related by Historians, is interesting as throwing some light on the practice of the singers of antiquity. At night he lay on his back, with a thin plate of lead on his stomach. He cleared the body by clysters and emetics, and abstained from all sorts of fruit and dishes likely to injure the voice. Suetonius says, that the best way of acquiring his good graces was to praise his voice, which was weak and thick, to affect to be in transports when he sang, and to appear sorrowful if, like most singers, he left off through caprice. Such was his passion for the applause of the multitude, that he appeared almost daily on the Stage; and Vespasian, who was afterwards Emperor, gave him great offence by trying on one occasion to escape from the private Theatre in his Palace while he was singing.

Music. Roman.

The successors of Nero encouraged public Games and Musical and Dramatic representations in all the great cities of the Empire. Hadrian, who was educated at Athens, was much attached to the Arts and habits of Greece. He established new Games; and Antoninus, who followed him in power, instituted others also in his honour, which were celebrated at Puzzuoli in the second year of every Olympiad. Commodus, a monster almost as cruel as Nero, was like him delighted also to appear on the Stage; but it seems that he was more of a dancer than an actor or singer, and that his chief pleasure was in presenting himself as a Gladiator. The fall of the Empire drew with it that of the Arts, and Music disappeared with the rest of them, till the period at which it revived in modern Italy, to spread thence throughout Europe, and to surpass not only that which had existed in ancient Rome, but even that which the Greeks had never been able to teach their scholars and conquerors.

Hadrian.

Commodus.

Decline of Roman Music.

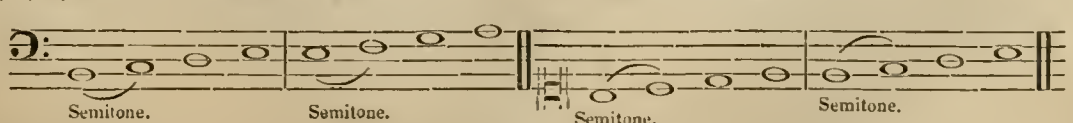
Modern System of Music.

Modern Music.

Aristides.

Aristides Quintilianus, a writer on Music, who is supposed to have lived about the IId Century of the Christian Era, and whose three Books on Greek Music were printed by Meibomius among the *Antiquæ Musicæ Auctores*, though he treated the subject more like a moralist than a professional man, gives many curious particulars and opinions on the Art as practised in his days. He ultimately reduces his definition of Music, however, to the study of the voice and accompanying action. It is not necessary to enlarge upon his doctrine here, we shall merely state that he divides Music into the contemplative and the active; the first regarding its causes and principles, the last the application and employment of them. The word *harmony*, to which a strict meaning is attached by all modern writers, was by the Ancients understood as the arrangement of the sounds of the system; and it may be observed that Quintilianus certainly understood the division of the three genera with which we are acquainted, namely the diatonic, the chromatic, and the enharmonic; the diatonic embracing, in a space of two octaves and a half, the interval between the *la* below our bass clef and our *re* on the fifth line of the soprano clef. This is the full extent of a man's voice, and contains eighteen strings or notes. These, as will be seen below, were divided, beginning at the second, into tetrachords, or combinations of four notes, each succeeding the other by the progression of one semitone and two tones.

Tetrachord.



It will immediately occur to the reader that any one of these notes might become that final in an air, by which many modes or keys would be obtained, each being superior or inferior, as the air might extend above the key

Music. Modern.

note, or as the key note might occupy the centre. Each note was indicated by a particular mark, according to its mode and genus, and it is manifest that each genus must introduce a number of new notes also represented by different marks, varying as the mode, and thus forming an almost infinite vocabulary. As in the formation of these marks or signs analogy was not kept in view, nothing was more confused than the study of Music, and it was proportionably difficult. Music was subservient to Poetry, so far as rhythm and metre were concerned; and at the period whereof we are speaking, Musical composition was exclusively confined to vocal pieces, and no precept whatever occurs relative to the use of intervals in harmony; and we might, doubtless, conclude that the Ancients were unacquainted with that which we term HARMONY; even if we did not possess positive knowledge of the origin and progress of modern Harmonic Art, as will hereafter be seen.

Music of the early Christians.

In the assemblies of the early Christians, it is well known that the congregations joined in chanting different parts of the Liturgy, that is, the Psalms and Hymns—a fact which implies simple and easy Music, sung without preparation, by persons who, generally speaking, were uninstructed in the Art, and who moreover professed to observe the greatest simplicity. This was the earliest step to the destruction of ancient Music; another was the method in which it was first set in the Christian Churches to barbarous prose, and to not less barbarous poetry. Thus the rhythm of their Music derived from their words retained but little mark of measure, and was probably drawled out in slow and unequal time to a language without harmony. It still, however, had constituted rules and variety in its change, and character sufficient to render it capable of being applied to other kinds of performances. The Music of the first four centuries of the Christian Church is not precisely known. At the end of that period, we learn from St. Augustin* that Ecclesiastical chanting was in so great confusion that St. Ambrose, Archbishop of Milan, in 374, undertook the task of reducing it to some order. To that Prelate the Church was indebted for laying the foundation of a superstructure executed by Pope Gregory two centuries afterwards, which has formed, in its turn, the basis of all that is grand and valuable in modern Art. The Gregorian Ecclesiastical tones, still used in the Churches of Italy in their early simplicity, first made the Italians the chief singers of Europe, and they may with equal truth be said to have been the origin of Music in our own Country. The modern chant of our Cathedrals, introduced at the Reformation, is but a poor substitute for that which, confined to nine varieties, has, without satiating the ear, been heard in the Romish Church from the time of Gregory to the present hour.

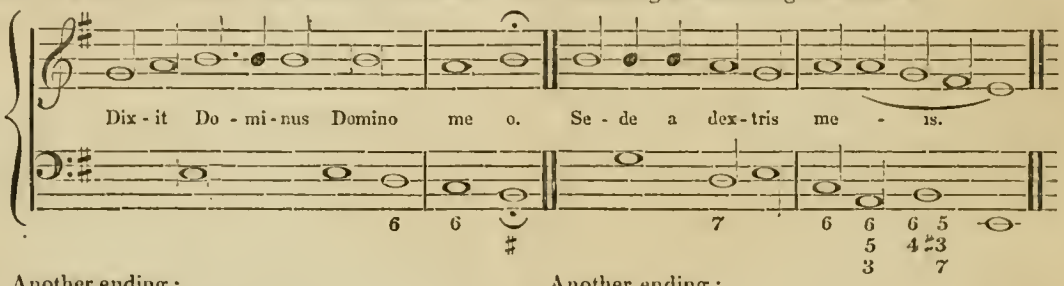
Music. Modern.

Pope Gregory.

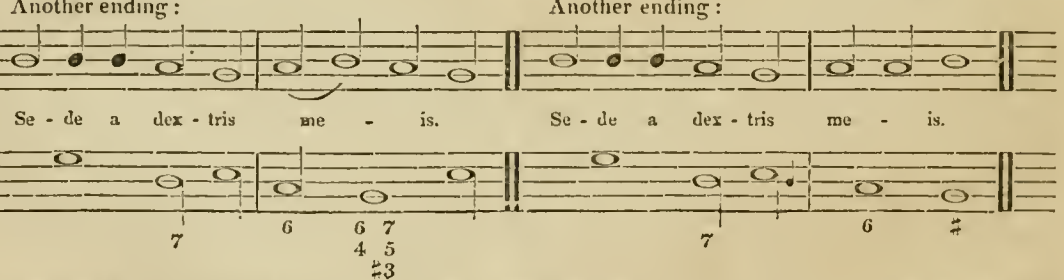
Ecclesiastical Tones.

The following are the Gregorian tones.

1st Tone



Another ending:

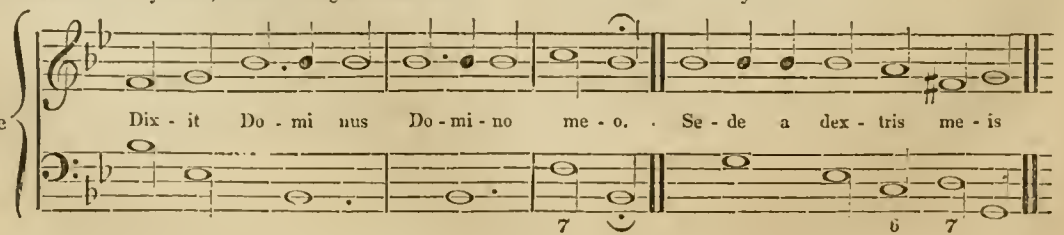


Another ending:

Before proceeding to give the remaining tones, we shall here briefly notice that the first four are in minor, and the latter four in major keys, and further, that the 1st, 3d, 5th, and 7th are called authentic tones, that is, not rising higher than an octave from the key note, and rarely descending below it. The remainder are denominated *plagal*, and do not descend *lower* than the octave to the tonic or key note, nor rise *higher* than the fifth to it; hence it ought to be a rule with the organists of the Catholic Church, that in giving out the authentic tones, a key should be chosen so that the final note may be in the lower part of the compass of the singer's voice, and for the plagal tones one in which the final may be in the middle of it.

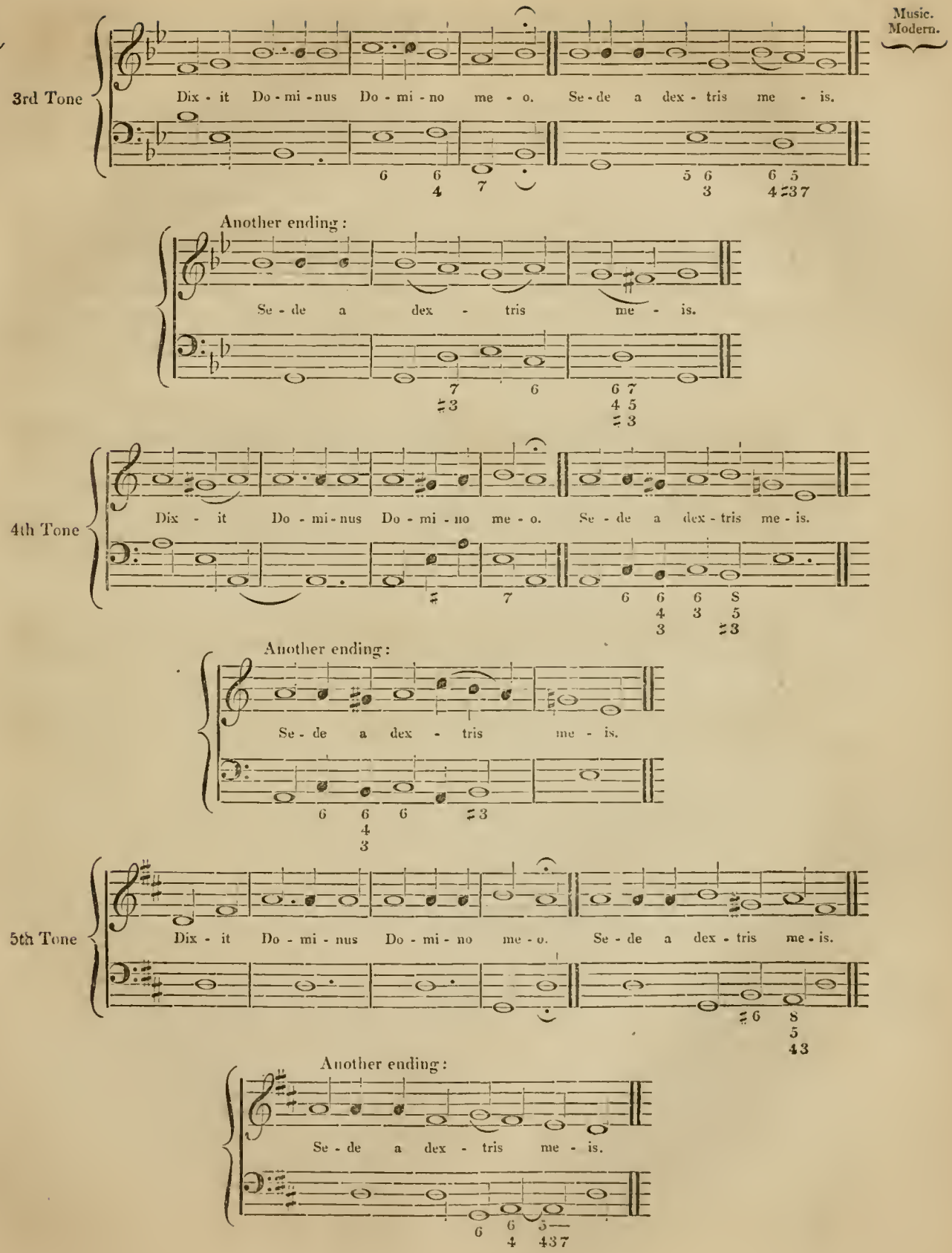
* *Confess.* ix. c. 7.

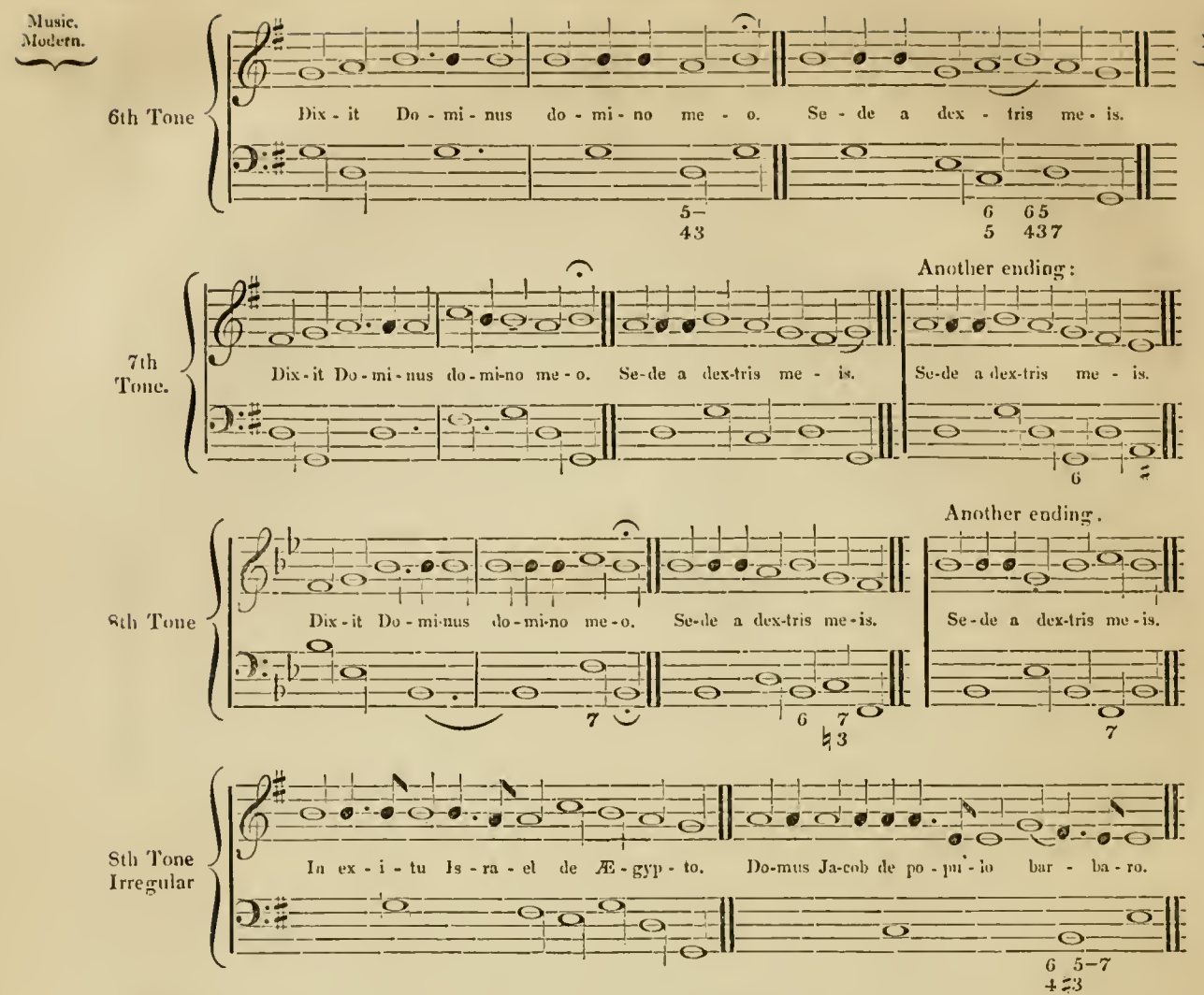
2nd Tone



Music. Modern.

Music. Modern.





The above are the groundwork of the Antiphons, Hymns, and Masses of the Gregorian Music, which, as we have above observed, still command the veneration of the Roman Catholic, and impress the cultivated Protestant ear with admiration. The harmonies show how susceptible such a system was of richness Gregory was not, however, satisfied with having formed this code of doctrinal Music, but maintained and ensured its duration by establishing a school for orphans, who were educated as singers for the different Christian Churches.

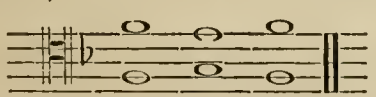
Musical scale of Guido.

It does not appear that the Musical scale assumed any form resembling that which it bears at present before the beginning of the XIth Century. We are indebted for it to Guido, born at Arezzo, a little town of Tuscany, about the year 990; duly to appreciate whose talents we must recollect, that between the decease of Gregory and the period whereof we now speak, the attempts to improve Musical notation were many. The practice had been to place letters on syllables to indicate sounds, neither a very intelligible method, nor one quickly read. To place them, therefore, at different degrees of height from each other, indicating the proportionate elevation or depression of the voice, those degrees being accurately marked by parallel lines, was no slight improvement. Though this mode had indeed been in some measure used before the time of Guido, it is to him we are indebted for its simplification and order. He wrote it at the beginning of the line, and when the note occurred merely put a dot in its place. And this method he afterwards improved, by placing dots in the intervals between the lines, to denote degrees, by which the scale was rendered much easier to perform at sight. Guido added to the system then in use a bass note, answering to our *g*, or sol, in the Fa, or bass clef, which he designated by the gamma (Γ) of the Greeks, and from this the series of sounds in the system takes the name of *gamut*. Beyond these improvements he proceeded to that of counting by hexachords instead of tetrachords, and of marking by the syllables *ut*, *re*, *mi*, *fa*, *sol*, *la*, the major hexachord, however placed in degree upon the system. This foundation of his system of solmization, we have not room to explain further. The invention of counterpoint has, without justice to former Musicians, been assigned to him. Notwithstanding he first wrote on the subject, he is not entitled to its invention, though it had made little progress before his time. The following appears its origin. The organ introduced into France as early as

Music. Modern.

the year 757, soon became general in the Western Churches. Used as an accompaniment to the voice, it was at first in unisnn with it, and the facility it afforded of giving several sounds at the same moment of time soon afforded the opportunity of discovering that among them there were some which, when simultaneously struck, produced sensations agreeable to the ear. The minor third appears to have been one of those first remarked, and thence generally used at the close of an air, but there were many other modes soon afterwards in use, such as holding the sound of the organ on a note below the plain chant, or *canto fermo*. Other harmonies were also used which (without detailing those employed by several authors previous to Guido, as Notker, Remi, Hucbald, and Ado de Cluny) show the origin of the Art, and at the same time prove that it was totally unknown to the Ancients. Those who are inclined to pursue this subject, will do well to consult the Abbé Gerbert's two Works, *De Cantu et Musicâ Sacrâ*, &c. 2 vols. 4to. 1774, and his Work in 3 parts, 4to. published in 1784, and bearing the title of *Scriptores Ecclesiastici de Musicâ Sacrâ potissimum*, &c. Up to the period we have arrived at, the *canto fermo*, or plain chant, consisted of notes of equal duration as respects time, and rhythm was unknown. Perhaps from the circumstance of profane Music containing a portion of that quality, or from Musicians beginning to feel its importance, so that the organ and the voice might move together, this branch of the Science now began to receive some attention. Franco of Paris, some say of Cologne, was the first who treated on this subject. Though his birth-place is uncertain, it is by no means so that he was a Scholar of the Cathedral of Liege in 1066. Before him, the attempts at this part of the Art, he says, had been fruitless, and it really appears that he was the first who reduced the rules of rhythm to a system. His Work is printed in Gerbert's collection above mentioned. His doctrine is, that measured Music is superior to plain chant, and he alludes to three measures of a note, the long, the breve, and the semibreve, whose subdivisions we omit, as well as his marks of relative rests and pauses. He gives five modes of rhythm, which are the elements of his Rhythmopœia. Descant he defines as the union of several melodies concordant with each other, though consisting of different figures. In his maxims an obvious progress appears, and most particularly in the use of the major or minor sixth between two octaves; being the earliest example in the records of the Science, as under :

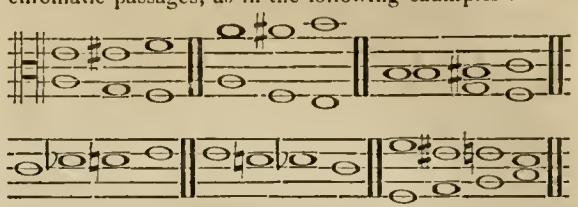
Franco.



For a century after the time of Franco, Music, as respects harmony, appears to have remained in the same state which it occupied about the period of the Crusades, when Europe was otherwise engaged than in prosecuting the Arts. Walter Odington, a Monk of Evesham, and Robert Handlo, the latter of whom flourished more than a century after the former, are the only authors of the period whom it is necessary to name. Towards the close of the XIIIth Century, a commentator on Franco arose, who appears with somewhat of the claim of inventor, a Paduan of the name of Marchetti, among whose writings we find one on plain chant, in 1274. A Work of his on Measured Music was dedicated to Robert, King of Naples, whose reign was from 1309 to 1344. Descant had made some progress at this time, and we now find the first use of chromatic passages, as in the following examples :

XIIIth Century

Music. Modern.



This author gives a theory, and treats at some length of chromatic and enharmonic genera. Certain, indeed, it is that the Art had then considerably advanced; as is proved by the writings of John de Muris, a Doctor of the Sorbonne, whose Country is undetermined; and who, but for the researches of M. Gerbert and Dr. Burney, would have had the credit of these inventions, particularly of rhythm and the form of notes. Though the science of harmony is much indebted to his exertions, it does not appear that he did much towards the advancement of Musical notation. It was he who first noticed the impropriety of two consecutive perfect consonances by similar motion, and who, moreover, laid down many laws respecting the succession of intervals which are observed at the present time; and in his Works the term *counterpoint* is first used instead of *descant*. A great variety of opinions appears to have been entertained about this time respecting the laws of counterpoint, inasmuch as the Doctor complains of the continual changes in the Art of Music.

John de Muris.

About this period, A. D. 1322, John XXII. issued a Bull countermanding the further use of descant in the Church because of the abuses into which it had degenerated, and its want of fixed principles. There is, however, at the end of it a saving clause to the following effect:—"It is not our intention wholly to prevent the use of concords in the sacred service, particularly on great festivals, provided the ecclesiastical chant or plain song be carefully preserved." John de Muris is supposed to have been living so late as 1345. Franco and he had many commentators, among whom were Philip de Vitry, of whom nothing more is now known than his name, and Prosdocimus de Beldemandis of Padua, who was a Professor of Music in that City in the year 1422, and whose writings are now lost; this latter is said to be the first who admits to a place the minor sixth in the catalogue of concords, and who speaks explicitly of the fourth as a discord. He, however, says it is less a discord than the second or seventh, and may be placed in a middle class between concords and discords. We may here notice that the name of Philip de Vitry frequently occurs in ancient authors, especially in England. Morley tells us, that he used red notes in his motets to imply a change of mode, time, and prolation. Vitry does not, however, mention this in his Tract on Counterpoint, and "his motets," says Burney, "such is the transient state of Music, would be utterly unintelligible," though Morley tells us, that "they were for some time of all others best esteemed and most used in the Church." From the XIIIth to the close of the XVth Century, there is a hiatus in the history of counter point. Perhaps this will not excite our wonder when we know from Durand, (*De Modo Gen. Concil. celebrandi,*) that at the latter end of the XIIIth Century, motets were considered indecorous and profane; and that Carpentier gives a passage from the MS. Constitu-

XIVth Century.

Prosdocimus de Beldemandis.

Philip de Vitry.

Music. Modern.

tions of the Carmelite Friars, ordaining that "no motets or other songs, that are more likely to excite lasciviousness than devotion, should be sung under severe penalties." The name of motet has been for centuries past, and is still given to all compositions for the use of the Catholic Church, such as Psalms, Hymns, Anthems, &c. The discoveries of M. Perne among the Manuscripts of the Royal Library at Paris, justify a hope that the interesting interval presenting the gap we have mentioned may be still filled up.

XVth Century.

About the close of the XIVth Century, the rhythmical feet of Franco began to lose ground, and the sounds introduced into the measure or metre were as many as the subdivision of the different orders of notes would at that time permit; this induced new forms or figures to represent new values of time, which were introduced towards the close of the XIVth and beginning of the XVth Century. They are not, indeed, mentioned in the writings of the period, but that they were instituted and fixed is certain, from our finding them in authors of a later date, and especially in the Works of John Tinctor, Chapel-

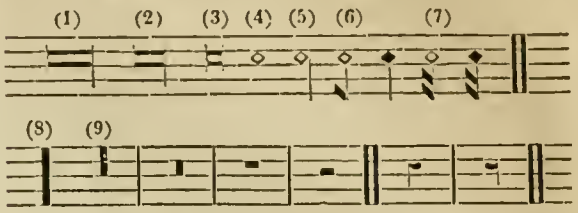
Tinctor.

master to Ferdinand, King of Naples, and afterwards Canon Doctor at Nivelle, in Brabant, and who consequently lived in the latter half of the XVth Century. Among other Works this author left a Dictionary of Music, under the title of *Definitorum terminorum Musicæ*. The doctrines found in Tinctor are, however, much better displayed in the Works of Franchino Gafforio, a writer who

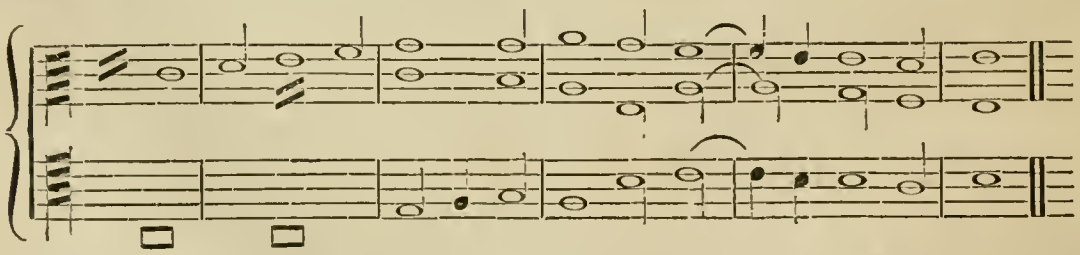
Gafforio.

forms a very memorable epoch in the History of Music, not only on account of the extent, but the durability, also, of his doctrine. Born at Lodi in 1451, in 1484 he became Chapel-master of the Cathedral of Milan, and Professor at the School of Music in that City. Of the Works which he left, that which is best known to the World is the *Pratica Musica*, printed at Milan in 1496, and almost one of the first Musical Treatises that issued from a printing-press. Its division is into four books, whereof the first treats of harmony, which then, as with the Ancients, signified little more than air; the second is on measured chant; the third on counterpoint; and the last on Musical proportions. The first has no novelty, but the second and third are interesting. Respecting the value of notes, Gafforio considers five as essential, and these are the five principal notes, namely the maxim, (1,) the long, (2,) the breve, (3,) the semibreve, (4,) and the minim. (5.) There are lesser values, the semi-minim of two sorts, *viz.* the major seminim (6) and the minor semi-minim. (7.) Each of these has a corresponding rest, the long having two, one denoting perfection, (8,) the other imperfection. (9.)

Music. Modern.



The relative value of these notes to each other is denoted by different terms. That of the maxim with the long is called the major mode, that of the long with the breve the minor mode, that of the breve with the semibreve is called time, and that of the semibreve with the minim prolation. At an earlier period this prolation was called minor prolation, and that of the minim to the semi-minim major prolation. Each of them may be perfect or imperfect, that is, triple or double, and the quoties is signified by different signs, and these relations being quite independent of each other, allow of almost infinite combinations. We find from Glareanus that those in which all the relations were double were in most general use; and secondly, that in which all are doubled except time; the first corresponding to our common time of two, and the second to our measure in triple time, using figures of double value; the remainder are included in our compound measures with a similar modification. In this, then, the system of values is fixed, excepting some slight modifications to be hereafter noticed. Gafforio's third book is divided into fifteen chapters. The first two treat in a general manner of counterpoint and its different sorts; the third contains eight rules for the succession of consonances, much the same as those now used; the fourth chapter is on dissonances, and sufficiently proves that those intervals were employed in the time of the writer, though with much circumspection, not longer than for the value of a minim,



in passages and by syncope, and this but rarely. On this point he mentions various composers who made use of them without any scruple, as Dunstable, Binchois, Dufay, Brasart, &c., and concludes by stating that many of these intervals may be used with propriety. The fifth and sixth chapters are on fourths, showing how they were used at that period; the seventh relates to sixths and thirds, and the remaining chapters to the arrangement of the different parts. Though Gafforio gives no details respecting the form of Musical pieces of his time, we know from John Tinctor that canons were then in use, and were called fugues, and that even enigmatical canons were known. Music was also divided into spiritual and profane, the former called *motet*, the latter *cantilena*. The compositions of this era, for so it may be denominated, and others rather later, display talents worthy of investigation.

When the Western Empire was destroyed and dismembered by invasions from the North, Music consisted only of the Ecclesiastical chant and the national melodies of the Barbarians; and in these was found the first distinction between the serious and ideal style. The popular songs of the Middle Ages, composed by the Troubadours, successors, as it were, of the ancient Bards, such as Raoul

Troubadours.

Music. Modern.

de Concy, Thibaut, Count of Champagne, and others, give a correct notion of the ideal style, whilst the serious style was restricted to plain chant, and the harmonies composed on it. At this period counterpoint made rapid strides, canons led on to fugues, and much art became required for composition. According to the testimony of Tinctor, England can claim the honour of having supplied one of the principal contributors to the revolution that took place in the Art. The passage which confers on the English a principal share in the invention of figurative harmony is as follows. *Cujus, ut ita dicam, novæ Artis fons et origo (Contrapuncti) apud Anglos, quorum caput Dunstaple extitit, fuisse perhibetur.* The writer goes on to enumerate his contemporaries in France, as Dufay and Binchois, who were immediately succeeded by Okenheim, Busnois, Regis, and Caron, *omnium*, he says, *quos audiverim in compositione præstantissimi.* The John of Dunstable above mentioned appears to have died either in 1453 or within five years afterwards. Tinctor wrongly attributes the invention of measured chant to John, and he has been followed by Sebastian Heyden, who wrote in 1537, and afterwards by Nucius, who adds to those above named many others who were certainly later, such as Josquin des Prez, H. Isaac, L. Senfel, B. Ducis, &c. Of this period we know of not more than one canon, which is given by Burney, and is a tolerable composition.

Advance ment of counter- point.

Of the Works of the ancient masters of the French and Flemish Schools, about 1480, and subsequently, many examples have reached us. L. Guicciardini accounts the Flemish as the older School, and says that it furnished all Europe with singers and composers. Guicciardini, however, must not be strictly relied on: he was a renegade Italian, who settled at Antwerp in the service of the Emperor Charles V., and in his History of the Low Countries determined on giving the people among whom he lived the honour of every useful and ornamental invention to flatter his patron, even at the expense of his native Country. So the Abbé du Bos, from a contrary principle, wished to give the honour to the Flemings in order to steal it from them afterwards in favour of France, his own Country. Among the most celebrated masters of the Flemish School were James Obrect, or Hobrecht, J. Ockenheim, but especially Josquin des Prez. Obrecht, the earliest, taught the celebrated Erasmus Music. He was born in the Netherlands in 1467, and Glareanus says, that so great was his facility in writing that he composed a Mass in one night, which was very much admired by the learned. It is not certain at what period Ockenheim died, but he is generally considered a composer of the XVth Century, as there is no proof of his existence in that following. He composed a motet in thirty-six parts, but of what they consisted, or how they were disposed, is not told by Ornithoparcus or others who mention the circumstance. This, however, was surpassed at rather a later period by our own Countryman Bird, who composed one in forty parts, whereof a copy is in possession of the writer of this Essay. The celebrated Josquin des Prez, or as he was styled in Latin Jodocus Pratensis, was the scholar of Ockenheim, and was universally considered by his contemporaries as the best composer of his time. His compositions for the Church, though long laid aside, and now obsolete through the change in notation, still deserve the attention of the curious. Burney says of him, "The laws and difficulties of canon, fugue, augmentation, diminution, reversion, and almost every other species of Musical contrivance allowable in Ecclesiastical compositions for voices, were never so well observed or happily vanquished as by Josquin, who may justly be called the father of modern harmony, and the inventor of almost every ingenious contexture of its constituent parts near a hundred years before the time of Palestrina, Orlando di Lasso, Tallis, or Bird, the great luminaries of the XVIth Century." He was a singer at Rome, afterwards Chapel-master to Louis XII. of France, and died about 1520. After him may be placed Pierre de la Rue, or as he is called in Latin Petrus Platensis, a very voluminous writer of the period. Walther says he was a Netherlander; Glareanus a Frenchman; others give Spain as the place of his birth. He certainly was a learned contrapuntist, and many of his compositions for the Church are still extant, some of which were published immediately after the invention of Musical types, in the year 1503. He made free use of the four principal discords, the second, fourth, seventh, and ninth. B. Ducis and other composers followed Pierre de la Rue, and up to the time of Orlando di Lasso maintained the honour of the Flemish School.

Flemish School.

Obrecht.

Ockenheim.

Josquin des Prez.

Music. Modern.

Pierre de la Rue.

B. Ducis.

The most ancient contrapuntist of the French School was Anthony Brumel, a contemporary of Josquin and scholar of Ockenheim. Without much invention, his harmony is pure, and his melody and notation clearer and more simple than is generally found in the writings of his day. Glareanus says, that at the beginning of the XVIth Century, at an extreme old age, he composed a *Kyrie eleison*, in competition with Josquin, wherein not only in the tenor, but in all the parts ascending and descending, he introduced the subject with wonderful skill. Brumel may be considered the founder of the French School of Music. Anthony Fevin, a native of Orleans, is mentioned by Glareanus as a successful emulator of Josquin. John Mouton is claimed by Guicciardini as a Fleming, but it is certain that the greater part of his life was spent in the service of the French Court, during the reigns of Louis XII. and Francis I. He was the scholar of Josquin and master of Adrian Willaert. Arcadelt, Verdelot, L'Heritier, Goudimel, and others followed, of whom our limits confine us to the mere enumeration. In Germany, about the same period, appear H. Finck, H. Isaac, L. Senfel, and others. The collections by Peutinger, Bodenschaft, and others, make us acquainted with the names and Works of more than two hundred composers who flourished between 1450 and 1580, to whom fugues and the most intricate compositions were mere amusements, written with singular ease and correctness.

French School. Brumel.

Fevin.

Mouton.

Germans.

It would be improper to omit in this place a concise view of the progress of counterpoint in our own Country, and we will premise by stating that there are Masses in four, five, and six parts, composed by Englishmen, which are as ancient as those of the Continental writers; as also secular Music of two and three parts, in good counterpoint, of the XVth and beginning of the XVIth Century. Among our early composers are William of Newark, Sheryngham, Edmund Turges, Tutor or Tudor, Gilbert Banester, Browne, Richard Davy, William Cornyshe junior, Syr Thomas Phelyppes, and Robert Fayrfax. Little, however, is known of these Musicians. Turges was one of the Musicians of Henry VI. Tudor was the author of several compositions in Prince Henry's (Henry VIII.) Music Book. Cornyshe was in the Chapel of Henry VII.; and Fayrfax was admitted to the degree of Doctor of

English Music from XVth Century to present time.

XVth and XVIth Centuries.

Music. Modern.

Music at Cambridge in 1511. In the reign of Henry VIII. we have not only the Monarch himself a clever Musician, as is manifest from the Anthem under his name in Boyce's Collection of Cathedral Music; but the names of Kasar, Ashton, Nonman, Shepherd, Dr. Christopher Tye, whose *Laudate nomen* is still sung and admired, and is in truth a magnificent specimen, Johnson, Parsons, and others, which point out the extent and success with which Music was cultivated in England. From the Earl of Northumberland's (Henry Algernon Percy, fifth Earl) *Household Book*, it appears that this Nobleman, as was the practice with others, retained a regular Musical retinue. One of the items runs thus, "My Lorde usith and accustomyth to gyfe yerely to every Erlis (Earl's) Mynstrellis, when they custome to come to him yerely, iij*s.* iiij*d.* Ande if they come to my Lord seldome, ones in ij or iij yeres, then vj*s.* viij*d.*" It is clear that great attention was paid here to Choral Music during this King's reign, for among the "Ordinaunces made for the Kinges Houshold and Chambres" by Wolsey, it is said, that "when the King is on journies or progresses, only six singing boys and six Gentlemen of the Choir shall make a part of the Royal retinue; who daylie in absence of the residue of the Chapel, shall have a Masse of our Ladye before noon, and on Sondaies and holidaies Masse of the daie, besides our Lady-Masse and an Anthempne in the afternoon; for which purpose, no great carriage of either vestiments or bookes shall require." In 1550 the whole of the Cathedral Service was set to Musical notes by John Marbeck, organist of Windsor, and printed by Richard Grafton. Marbeck was a zealous Reformer whose enthusiasm was near being the cause of his martyrdom in Henry's time; he was condemned to the stake for heresy, but pardoned at the intercession of Sir Humphry Foster. As it can scarcely be said that England could ever boast a School of Music, it will be more convenient in this place to follow up a succinct account of its history and our best authors from the period above named, before we proceed to notice the Italian, German, and French Schools.

Henry VIII.

Tye.

Marbeck.

Elizabeth.

Elizabeth, in the early part of her life, appears to have studied Music, and a long and generally tranquil reign, in spite of the fanaticism of the times and the outcry of the Puritans, allowed it to be brought to a pitch of perfection here, through the diligence and talents of Tye, Tallis, Bird, Morley, and others, scarcely surpassed by that of Italy itself. Yet it would appear that the parsimony of the Sovereign in rewarding Musical talent was such, that Drs. Bull and Dowland, two master spirits in the Art, quitted the Country in pursuit of better encouragement on the Continent. James I. came from a part of the Island, which, notwithstanding the splendid talents it has exhibited in Literature and the other Arts, cannot be recognised as having hitherto produced a good Musician. This Prince received no pleasure from Music. In his reign the names that appear are those of Dr. Nathaniel Gyles, Thomas Tomkins, Elway Bevin, and Orlando Gibbons in Ecclesiastical Music. For the chamber, principally madrigals, besides the above, we had Michael Este, Thomas Este, Bateson, Pilkington, Litchfield, Ward, Wilbye, Farmer, Bennett, Ford, and others. It would be unjust to the memory of Gibbons, whose splendid compositions are still used in our Cathedrals, and will never be surpassed, to withhold the testimony of Dr. Tudway to his genius; he says that his services and "anthems are the most perfect pieces of Church cumposition;" and again, that his "fugues and embellishments are so just and naturally taken, as must warm the heart of any one who is enduced with a soul for divine raptures." He died in 1625, being commanded, as organist to Charles I., to attend the marriage of his Sovereign with Henrietta of France at Canterbury, and having composed the Music for the occasion in that City, he was there attacked with the small-pox, and dying on Whitsunday, was buried in the Cathedral. We regret that our space does not allow us to enlarge further on the merits of the writers above mentioned; the Musician, and especially the Madrigalian, well appreciates the encomiums, though passing, which it is our duty to pay them, and it may be interesting to the reader to be aware, that there still exists in the Metropolis a Society, founded about a century ago, whose object is the preservation and performance of the Music of Elizabeth's, James's, and Charles's reigns, and in which he may still occasionally hear sung, as of old, *The Triumphs of Oriana*. This, "the Madrigal Society," is a truly Antiquaries' Society, and worthy of more patronage than it has ever received; having rendered important service to the Art by keeping alive the true and classic English style. We feel pleasure in simply recording the name of John Immyns its founder. It is at present under the presidency of a most worthy and distinguished amateur, Sir John Rogers, of ancient family, and himself a Musical writer of no ordinary abilities.

Tallis and others.

James I.

Gibbons.

Music. Modern.

Madrigal Society.

Charles I. acquired considerable facility on the viol di gamba. He had much affection for Music, and especially for that of the Church. Hence he encouraged the Art and its Professors. From Rymer's *Fœdera* we find that his band consisted of Nicholas Lanière, master thereof, who had two hundred pounds yearly for wages, Thomas Foord, Robert Johnson, Thomas Day, Alfonso Ferabosco, Thomas Lupo, John Lawrence, John Kelly, John Cogshall, Robert Tayler, Richard Deering, John Drewe, John Lanière, Edward Wormall, Angelo Notary, and Jonas Wrench. Also Alfonso Bales and Robert Marshe. Among these are the names of some writers whose compositions are known to us; such as Foord, Ferabosco, Johnson, Day, and Deering; but the more celebrated of the reign, such as Dr. Child, Dr. Wilson, and William and Henry Lawes, although honoured with the King's favour, do not appear in the grant. Dr. Child was a good but not extraordinary Musician, and after having been organist of St. George's Chapel sixty-five years, died at Windsor, aged ninety, in 1697. In 1641, John Barnard, a Minor Canon of St. Paul's Cathedral, published and dedicated to Charles a fine collection of English Church Music, consisting of services and anthems; it is to be regretted that it was not in score, each of the parts having been printed in folio separately, and a complete copy of them is not now known. They consisted of morning and evening services, and the communion pieces and responses by Dr. Tye, Tallis, Bird, Morley, Strogers, Bevin, Orlando Gibbons, Mundy, Parsons, Dr. Gyles, and Woodson, with Tallis's Litany, and a considerable number of full anthems in four, five, and six parts, by Tye, White, Farrant, Shepherd, Bull, Parsons, Morley, Hooper, Mundy, Giles, Gibbons, Batten, Weelkes, and Ward. Of this period, although they are not authors of choral compositions, ought not to be forgotten the names of Martin Pierson, Richard Deering, a member of the family of the Deerings of Kent, Christopher Gibbons, Ben Rogers, Matthew Lock, and others. In this reign

Charles I.

His band

Music. Modern. Dramatic.

Dramatic Music appears first in England to any advantage. In 1635 was performed in the Middle Temple, a Masque written by Sir William Davenant, the vocal and instrumental Music being said to have been composed by William and Henry Lawes. In 1639, we find a Masque, *Salmacida Spolia*, written by Davenant, and the Music by Lewis Richard, Master of his Majesty's Music, a name which we do not recollect to have seen on any other occasion. In the 11th Charles I. an extensive Charter was granted to the most eminent Musicians living at the time, incorporating them by the style and titles of Marshall, Wardens, and Commonality of the Art and Science of Musick in Westminster in the County of Middlesex, investing them with great privileges, which were afterwards confirmed in the fourteenth year of his reign. The patent roll of this Charter is tested 15 July, 11 Car., and is in the Rolls Chapel. The powers granted to this Company extended throughout the realm, the ancient claim of the Dutton family over the minstrels of the Palatinate of Chester only excepted. The powers given them were sufficient to sow the seeds of their destruction, which soon occurred.

Charter to Musicians.

Suppression of the Cathedral service.

The suppression of the Cathedral service in 1643 was a death-blow to the Music of England. Puritans have no bonds of fellowship with the refined Arts, and the cant and hypocrisy of the times will account for the comparative barbarism into which Music fell in the reigns of James and Charles: the contentions of parties also allow little time and disposition for the culture of the Arts, however indisposed their professors themselves may be to mix in the troubled throng. Thus during the Protectorate, the chief Musicians sought asylums in the houses of private persons, among patrons who were scarcely able to protect themselves. The Musicians selected by Charles were not men of great genius and abilities, yet the King was neither ignorant nor partial in his choice; they were the best the nation could boast at the time. Though on every other point the realm was divided into factions, which were actuated by the extremest violence, there was but one opinion of the merits of William and Henry Lawes. Yet notwithstanding the testimony of Milton, himself, it is presumed, a very fair Musician, we are unable to perceive in the compositions of these men sufficient to justify the panegyrics bestowed upon them. To Tallis, Bird, and Gibbons they were infinitely inferior; indeed, it is scarcely right to name them in the same sentence. The Interregnum from the death of Charles to the Restoration, from the extreme fanaticism of the times, was very unfavourable to Music, yet was it zealously cultivated in private, and among those whose career commenced in this period was John Jenkins, a great composer of *Fancies for Viols*, which were in high estimation during the rude state of Instrumental Music; he was much, and perhaps deservedly, admired at the time, but except a madrigal or two of some merit, his Works are now forgotten. The lovers of English Vocal Music are indebted to John Playford, who, in 1655, published the first edition of his *Introduction to the Skill of Music*, a compendium of Morley, Butler, and other Works. It had so rapid a sale, that, in 1683, it had passed its tenth edition. It contained no novelty in theory or practice, but its form, price, and style were so suited to every class of the Musical world, that it seems to have been more generally purchased than any elementary Tract that had then appeared in this or any other Country. Playford was born in 1613, and was not only a vendor of Music but a good Musician. His publications were very numerous, and his intelligence as a printer of Music, so far secured to him and to his son the esteem of the first masters of the Art, that without a special license, or authority, he appears to have had almost a monopoly of the business of furnishing the nation with instruments, books, and all the tools of the Science. During the period of the Civil War, Oxford was the place of refuge for Musicians, but after 1646, the year in which the King was forced to quit that city after the battle of Naseby, till 1656, all seems hushed. From that time Anthony Wood, a lover of the Art, and for other causes venerable in the eye of the reader, preserved a good account of the state of practical Music in the University. Honest Anthony tells us, "The gentlemen in private meetings which A. W. frequented, played three, four, or five parts with viols, as treble viol, tenor, countertenor, and bass, with an organ, virginal, or harpsicon joined with them;" but he adds, "they esteemed a violin to be an instrument only belonging to a common fiddler, and could not endure that it should come among them for feare of making their meetings to be vaine and fiddling. But before the Restoration of Charles II., and especially after, viols began to be out of fashion and only violins used, as treble violin, tenor and base violin; and the King, according to the French mode, would have twenty-four violins playing before him, while he was at meales, as being more airie and brisk than viols." In truth, at this period instrumental Music, and particularly stringed, had begun to make its way in England. Wood afterwards gives the names of the performers with whom he used to play, as well as a sketch of their moral and Musical qualities. Thus he describes "Christopher Harrison, M. A., fellow of Queen's College, a maggot-headed person and humorous;" "Nathan Crew, M. A., a violinist and violist, but alwaies played out of tune as having no good eare, he was afterwards Bishop of Durham." Thomas Ken, afterwards Bishop of Bath and Wells, used to be of these parties.

Music. Modern.

At Oxford during Civil War.

William and Henry Lawes.

Interregnum.

Jenkins.

Playford.

At the Restoration, Child, Christopher Gibbons, Rogers, and Wilson, were created Doctors, and were promoted together with Low of Oxford. Child, Gibbons, and Low were appointed organists of the Chapel Royal, and Captain Henry Cook was made master of the children. Gibbons, likewise, held the situation of organist of Westminster Abbey; Rogers, formerly of Magdalen College, Oxford, was removed to Eton. Wilson had places in the Chapel and Westminster Abbey, and Albertus Bryne, a scholar of John Tomkins, was appointed organist of St. Paul's. Thus the choir throughout the Kingdom were in time supplied with good masters. The organs, which had mostly been destroyed, were not restored without great difficulty, for except Dallans, Loosemore of Exeter, Thamar of Peterborough, and Preston of York, scarcely an organ-builder was left. At this period, Schmidt and Harris, with his son René Renatus, were invited over, and received the homage due to their transcendent abilities. At the Coronation of Charles II., according to the Cheque-book 23d April, 1661, the Musical establishment contained, among others, the following celebrated names: William Tucker, minister; Edward Lowe, William Child, and Christopher Gibbons, organists; Henry Cook, Henry Lawes, Thomas Piers, Henry Purcell, Edward Colman, Gentlemen. Charles, says Tudway, was a brisk and airy Prince, and tired with "the grave and solemn

Restoration.

Charles II.

His choir.

Music. Modern.

way which had been established by Tallis, Bird, and others, ordered the composers of his Chapel to add symphonies, &c. with instruments to their anthems." This produced a new style of writing, and soon afterwards some of the cleverest children of the Chapel arrived at skill in composition, among whom were Pelham Humphreys, John Blow, and others, to whom the King gave much encouragement; Humphreys and Blow were both fine composers. The latter succeeded Purcell (who first brought Dramatic Music in this Country into repute) at the organ of St. Margaret, Westminster. He was contemporary with another fine writer, John Weldon, and died in 1708, at the age of sixty, leaving a name venerable among English Musicians.

Henry Purcell.

Of Henry Purcell, it is truly said by Dr. Burney, that he "during a short life, and in an Age almost barbarous for every species of Music but that of the Church, manifested more original genius than any Musician under similar circumstances, that my inquiries into the History of the Art have yet discovered in any part of Europe." Henry Purcell was born in 1658. Both his father Henry and his uncle Thomas were gentlemen of the Chapel Royal at the Restoration. As his father died when he was only six years old, it is probable his master was Captain Cook, who continued master of the Chapel boys to the time of his death in 1672. Purcell was organist of the Abbey at the age of eighteen. Humphrey succeeded Cook, and Purcell continued to receive instructions from him till his voice broke. He had a few lessons from Blow, which are blazoned in that Musician's epitaph by the boast of "Master to the famous Mr. Henry Purcell." His powers embraced every species of composition with equal facility. In the Theatre he knew how to produce the utmost effect whereof an orchestra was then capable; in the Church, fugue, imitation, or plain counterpoint, or the expressive style of accompanying the voice with instruments, whereof he was the founder; in the chamber, sonatas for instruments, odes, songs, ballads, cantatas, and catches, were equally easy to him. He became the darling and wonder of the nation, and, till the arrival of Handel, was almost the only composer whose Works commanded attention. He died November 21, 1695, in the thirty-seventh year of his age. Had he lived longer, it is not improbable we might have had to boast of an English School of Secular Music, a collection of which by him was published by his widow two years after his decease under the title of *Orpheus Britannicus*. The public have been recently much indebted to Mr. Vincent Novello, a Musician of the present day of no common abilities, for bringing to light and publication some of the unknown wonders of Henry Purcell, and it is but justice to say, that the editor is worthy of the author.

Composers for the Church after him.

After the death of Purcell, the chief composers for the Church were, as dilettanti, Drs. Holder, Creyghton, and Aldrich, and William Tucker, as professors, Jeremiah Clarke, Goldwin, Weldon, and Drs. Croft, Green, Boyce, and Nares. Of these men, all eminent, we cannot refrain from singling out, in an especial manner, Dr.

Aldrich.

Henry Aldrich, appointed Dean of Christchurch in 1689, who was not only profoundly skilled in the theory and practice of harmony, but also distinguished himself as a scholar, a theologian, a profound critic, an able architect, and possessed exquisite taste in Arts, Science, and Literature in general. His compositions for the Church give him a rank among the greatest masters of his time. Besides his numerous original compositions, he adapted English words to the Psalms and Liturgy, to many of the motets of Tallis, Bird, Palestrina, Carissimi, Graziani, and Bassani, originally used for the Roman Catholic service. He sometimes amused himself with lighter compositions, and we apprehend that there are few of our Musical readers who can be unacquainted with the pleasing melody and general effect of his round "Hark the bonny Christchurch bells." Dr. William Croft, a pupil of Blow, was one of the great Musicians of this period; a composer pleasing, elegant, and apparently simple, he frequently rose to the grand and masterly, and he has left scarcely a composition which does not exhibit great genius and learning. His Choral Music was published in two volumes folio, in 1724, under the title of *Musica Sacra, or Select Anthems for two, three, four, five, six, seven, and eight Voices, to which is added the Burial Service as it is occasionally performed in Westminster Abbey.* The Burial Service, which closes the first volume, was composed upon an idea suggested by Purcell who lived only to finish one movement. It is simple counterpoint of note against note, and its solemnity, arising much from its simplicity and the syllabic coincidence undisturbed by fugue, is so admirable that it still retains its place at every Royal and Public funeral in this Kingdom. Dr. Croft died in August 1727, in the fiftieth year of his age, of an illness contracted by attending his duty at the Coronation of George II. He lies buried in the North aisle of Westminster Abbey, in which he held the situation of organist. To Dr. William Boyce the Cathedral Service was, and still is, under great obligations for his *Choral Collections*, which were published in three volumes folio. He obtained great fame as a dramatic and miscellaneous composer, and there is much originality and sterling merit in his compositions. The last Musician we shall name, not from want of numbers but from our space failing us, is Jonathan Battishill, who seems to be the connecting link between the old and present race of English Musicians, amongst whom is to be found much genius for Choral Music, though we regret to say we cannot produce many instrumental compositions from them of equal ability. Battishill died at Islington in 1801, aged sixty-three years, and, according to his last request, was interred near Dr. Boyce in the vaults of St. Paul's Cathedral. This composer and Samuel Webbe may be considered as the founders of Glee-writing, a species of composition confined to this Country, in which we have no rivals, and in which we mention the names of Alcock, Arne, Attwood, Ayrton, W. Beal, Callcott, Dr. Cooke, Robert Cooke, Croteh, Danby, James Elliott, Harington, William Hawes, Horsley, William Knyvett, Thomas Linley, the Earl of Mornington, Shield, Stafford, Smith, Spofforth, T. F. Walmisley, the Wesleys, Charles and Samuel, &c. &c. as having contributed to its perfection.

Music. Modern.

Dr. Croft.

Dr. Boyce.

Battishill and his successors.

We shall now return to the consideration of the Art as perfected in other Countries, premising that our observations will be confined to the Musical system and the different styles of composition. According to Glareanus, the most prevalent combination which resulted from the perfection or imperfection of the ancient modes, was that in which the values of the notes were imperfect, that is in a duplicate or subduplicate ratio. This became at length the foundation of all the Musical relations; various modifications succeeded, and these were chiefly brought into use by the invention of bars, which were introduced by composers to render the calculation of corresponding values easier, by enclosing within a

Perfection of the Art on the Continent.

Use of bars.

Music. Modern.

given fixed space as many notes of the score as were equal to one note of great duration. Thus at first a bar was drawn only at every eighth or fourth measure. The Works that appeared about 1600, are the first known with any kind of bars; the general use whereof did not obtain till a century after. The distance between the bars gradually diminished till they enclosed but one measure, as in the present time, at which the only exception arises in the *à capella* time, where two semibreves moving quickly are enclosed in one bar to save the frequent repetition of bars. Thus the introduction of bars with their gradual increase has brought notes of great value into disuse, and a bar is now rarely valued by a note of greater duration than the semibreve. The Moderns have multiplied diminished notes in the form of crotchets, quavers, semiquavers, &c., which formerly were scarcely known. Rhythm has sustained little variation, not so with sounds, and consequently harmony and counterpoint.

Modes.

In the XVIth Century a change took place which led the Art to its present perfect state. Every one sensible of Musical tones must have remarked that all Musical pieces end in some particular note or sound. This is called the tonic or principal note. If the piece be dissected, it will be found to consist of a number of notes having each a different ratio to the principal or key note. The combination of them constitutes the Musical mode; and by proceeding upwards from it to its octave or eighth, placing each sound in regular succession, the scale of the mode is formed. It is consequently evident that a great variety of systems may be formed from the different modes. In the present day we have but two modes, the major, in whose scale is contained *ut*, *re*, *mi*, *fa*, *sol*, *la*, *si*, *ut*, and the minor, whose ascending scale is *la*, *si*, *ut*, *re*, *mi*, *fa*, *sol*, *la*. It was in the XVIth Century that this system of tones became universally known, and its influence in composition is soon discoverable. It was fully established in the School of Durante at Naples. As regards its theory, Choron maintains, with truth, that it is still imperfect, but this is not the place to enter upon that subject. Had the system experienced no variation, the Science would have attained its limits three centuries ago, and there would have been nothing to add to the labours of Ockenheim, Josquin, Orlando, and the other masters of the French and Flemish Schools. The alterations, however, which took place in the tonal system led to changes in every branch of composition. The early contrapuntists almost invariably added the third and fifth to all the notes of the scale except that which bears the minor fifth, to which they affixed the sixth. All harmony was thought allowable which excluded a succession of fifths and octaves; but the doctrine of the new modes soon exhibited the errors of this sort of harmony, which gave innumerable bad combinations, such as the sixth with the third, or often on other degrees of the scale.

Montverde introduces harmony of the dominant.

Charles Montverde, a Schoolmaster of Lombardy, who lived about 1590, was the inventor of the harmony of the dominant, and the first who had the courage to use the seventh and ninth of the dominant without preparation; he also employed the minor fifth as a consonance which had theretofore been treated as a discord. These points admitted, Musicians soon came to the conclusion, that only three essential harmonies were to be acknowledged in the mode, that of the tonic, the dominant, and the subdominant, which are all that should be placed either direct or inverted on those notes as well as those comprised in their harmony. Monteverde also introduced double dissonances, followed soon after by triple dissonances, and diminished and altered chords. Counterpoint was of course affected by these changes, and intervals in melody unthought of before, as well as intervals in harmony entirely original, quickly succeeded each other.

Music. Modern.

Viadana di Lodi.

Viadana di Lodi, about this period, hit upon the process of giving a melody to the instrumental bass altogether different from that of the vocal bass, proposing to make this bass form the groundwork of the piece, and to represent the chord it was to bear in every part by means of figures. Thus, although he added nothing to harmony, he must be considered the inventor of what is called the fundamental bass. These innovations were sometime in gaining ground, but towards the close of the XVIIth Century, the Ecclesiastical tones began to be considered as little more than a form to keep the modern tones within bounds; so at least the Neapolitan School, with Durante at its head, used them, and the modern tones are now universally allowed in the Church.

inventor of fundamental bass.

Zarlino.

P. Aaron Togliani, and the authors of the first half of the XVIth Century, added little to the improvements of the XVth. Zarlino's *Institutiones*, published in 1571, contained the theories and precepts up to his time; but celebrated as his Work has been considered, he seems to have had but a confined knowledge of his contemporaries, inasmuch as he does not appear to have heard of Palestrina, who was at that period in the zenith of his reputation. Zarlino was, however, himself one of the Flemish School, which may account for the silence.

Ceroni.

D. P. Ceroni, in 1613, published at Naples his *Melopeo*. Narrowing the boundaries of Musical doctrine he modified his precepts according to those of Palestrina and the composers of the Roman School, and Galeazzo Sabbatini soon afterwards gave rules for thorough bass on the same principles.

Berardi and others.

The Treatises, however, of Berardi, Buononcini, and Gasparini, at the close of the XVIIth and commencement of the XVIIIth Century, reduced the practices in counterpoint to a regular theoretical system little different from that received at present.

Rameau.

At the beginning of the XVIIIth Century, Rameau, a French writer, gave out that all rules up to his time were merely blind traditions, and proposed to reduce them to a few precepts dependent on the law of Physics. We do not think it useful to pursue the analysis of his doctrines. Nothing can be more erroneous than some of his enunciations; as for instance, that in which he states that harmony will be regular whenever the chords of which it is formed, being brought back to their fundamental chords, offer successions correspondent to the rules he has established; since a survey of the cases in which his method is adopted proves that a fundamental succession of notes may have very bad derived successions, and, on the contrary, from good and usually derived successions fundamental successions arise which he condemns as faulty. His principle met with some success in France, but is now everywhere laid aside, and it was never of any other use than to attract the attention of writers on the theory of inversions. It however produced in France a habit of viewing harmony in a Philosophical manner, and towards the close of the XVIIIth Century it led to the formation of an elementary Work by the Conservatory at Paris, or at least by the Professor of that establishment. (Catel.)

Catel.

Catel considers as natural chords those commonly called consonances, and all dissonant chords used without preparation, he examines their successions and shows how, by means of the anti-

Music. Modern.

cipations, retardations, and alterations whereof they are susceptible, they generate all artificial chords or dissonances properly so called. This doctrine was not altogether new, inasmuch as it had been taught by the School of Durante, and had also been used in Germany; but Catel placed it in a clearer light, and fixed it for adoption in France, and it may be truly considered an important advance in the doctrine of harmony.

Styles of composition.

Respecting the different styles of composition in Music, the principal are usually considered under the heads of Church, Chamber, and Instrumental Music. The first is properly divided by Choron into four species; that *à capella*, the accompanied style, the concertante style, and lastly, the oratorio.

Church style.

That which belongs most exclusively to the Church is the style *à capella*. It was generally written on the tones of the plain chant without accompaniment. It is of four sorts, the plain chant, the fauxbourdon, counterpoint on the plain chant, and Ecclesiastical, fugued counterpoint. Of the plain chant an idea may be formed from the specimen of the Ecclesiastical tones above given, which have undergone no alteration since Pope Gregory's time. The fauxbourdon is the most simple of compositions with many parts, and is with counterpoint of note against note in which the bass bears perfect chords only; it remains still the same as at the time when the rules of composition were firmly fixed, (which is more remote than the Flemish School,) and it is now only used in Psalmody and some few canticles. With the third sort, or counterpoint on the plain chant, is frequently and erroneously confounded the fauxbourdon, but in it the plain chant is strictly preserved, and it consists in forming thereon various other parts displayed with all the ingenuity of counterpoint, such as imitations, fugues, canons, &c.; its history and that of composition are the same. The masters of the Flemish School succeeded in it wonderfully, but it is to Italy we must look for taste, elegance, and grandeur in this style, whereof the finest specimens were produced in the XVIth Century. In France it was soon neglected, and our own experience of the difference a very few years ago between the Ecclesiastical Music of France and Italy would lead to a doubt, did we not know the contrary, whether it ever had existence at all in the former Country. The contrapuntists of the XVth and XVIth Centuries did not restrict themselves to the plain chant as a basis, but frequently employed a plain chant or simple melody of their own as the groundwork; and moreover they soon diverged from the rule of keeping the leading chant to a particular part, and took their successive subjects from the principal features of the plain chant by introducing various kinds of imitations in the parts, and this was, doubtless, the origin of fugue. The sense of the words was neglected, but the Music displayed the talent of the composer and the powers of the singer, and at length proceeded so far that the Council of Trent entertained the proposition of suppressing Music in Churches altogether, and a decree would have passed to that effect but for particular and local considerations. Pope Marcellus, about 1552, considering the extent to which this style was carried, determined on reducing Church Music once more to the

Palestrina.

simple Gregorian chant, when the young Palestrina presented his Holiness with a Mass in a style entirely new, devoid of tumult and noise, the harmony pure, the style grand and pious, the expression of it sweet yet majestic; all features which characterise the style of the immortal Palestrina, truly called by his Countrymen *Il Principe de' Musici*. This man may be said to have been the founder of every thing valuable in the Art. He was considered by his successors as a model not to be equalled; which feeling, added to a continual change in the foundation of the system, induced them to abandon a style wherein little glory or advantage could be acquired. The decline of the *à capella* style, the varieties of which during the XVIth Century had risen to a height since without parallel, was eminently serviceable to the accompanied style, or that in which the voice is accompanied by the organ alone, and to the concerted style, wherein all sorts of instruments accompany the voice. To trace the origin of these would be rather difficult, and when accomplished, would answer no useful purpose. Choron says that the first has been much influenced by the madrigal style, the second by that of the Theatre; we do not, however, quite coincide with him, thinking it possible that exactly the inverse was more probably the fact. It is, however, but justice to that excellent and learned author, to whom we confess ourselves largely indebted, to allow that there is room for doubt as to the opinion we entertain.

Music. Modern.

Oratorio.

The oratorio is a species of drama whose subject is generally some story selected from the Scriptures, or a Religious allegorical piece for performance in a church by singers who personate the different characters of the drama. Choron observes, that the oratorio differs from the sacred drama, inasmuch as though the subject of each may be the same, the latter is for the Theatre, the former for the Church. The invention of the oratorio is attributed to St. Philip of Neri, who was born in 1515, and founded the Congregation of the Oratory at Rome in 1540. Wishing to turn to pious account the theatrical enthusiasm which then prevailed at Rome and kept the people from church, especially in the time of the Carnival, he formed the scheme of having sacred Interludes written by good Poets, and of having them set to Music by the best composers, and performed by the most favourite singers. The experiment succeeded; the concerts attracted all Rome, and from the Church of the Oratory, (the Chiesa Nuova,) in which they were performed, obtained the name of oratorios. At first they were short and simple Poems; finally, nothing was wanting to their effect but the pomp of scenery and costume. Animuccia, a contemporary of Palestrina, was perhaps the earliest composer of an oratorio. Their style was at the beginning a mixture of the madrigal and cantata, but in the present day, oratorio compositions differ very little from those of the Theatre.

Chamber Music.

Madrigal.

Berardi and Padre Martini have divided Chamber Music into three styles, namely, simple madrigals, accompanied madrigals, and cantatas; to these Choron adds a fourth style, under the title of fugitive pieces, but we are rather inclined to place these fugitive pieces, such as the canzonette of Italy, the villanelle, &c. the bolero of Spain, the romance and vaudeville of the French, under the head cantata. The madrigal generally, but not necessarily, resembles much the motet and fugue of the Church; the words were latterly, however, of a secular nature. The simple madrigal is for voices only, the accompanied madrigal has, as its name implies, the accompaniment of the organ. Arcadelt has by some been considered the first who composed this species of Music; but the conjecture is without foundation, since

Music. Modern.

madrigals of more ancient masters have reached us, and even by composers of the ancient Flemish School. To those conversant with madrigal writers the name of Adrian Willaert will immediately occur. The truth is that simple madrigals came in about the beginning of the XVIth Century, during which and the whole of the following century the style was particularly cultivated and encouraged; but it has been completely abandoned since the early part of the XVIIIth Century, unless the English glee can be said to be a graft of it, which, perhaps, may be truly advanced. There was much variety in this style. The first madrigals very much resemble the church style, but they afterwards assumed a character peculiar to themselves. The change may be strikingly recognised in the madrigals of Luca Marenzio, but a little after the time of Palestrina, and afterwards in the Works of Gesualdo, the Prince of Venosa, of Monteverde, Mazzochi; and it seems to have been exhausted by attaining its utmost limit in the compositions of the celebrated Alessandro Scarlatti. The accompanied madrigal seems to have originated only after the practice was introduced of placing an instrumental differing from the vocal bass below the voices; a practice which dates from the commencement of the XVIIth Century. The principal writers in this style were Frescobaldi, Carissimi, Lotti, Scarlatti, Clari, Marcello, and Durante. Since these masters, little has been attempted in this style of Music, one which requires great Musical learning and the devotion of years to the study of the Science. Choron says, and perhaps too truly, that the Musician of the present period limits his glory to the composition of a song; nor can we much wonder at it when we reflect on the rewards attendant on Theatrical compositions, as distinguished from those of the Church and Chamber.

Cantata.

The Cantata, which originates from the Lyric Drama, is a short Poem, which in a literary sense has no very determined character, though generally confined to the recital of some simple interesting passage or fact to illustrate the expression of some peculiar sentiment. It has a wide range, sacred, profane, heroic, comic, and even ludicrous subjects admit its employment. Its invention is assigned to the early part of the XVIIth Century, the first writers of it being Poliaschi a Roman, Loteri Vittorii of Spoleto, and Ferrari of Reggio, better known by the name of Ferrari della Tiorba. After these came Merula, Graziani, Bassani, and Carissimi. Towards the middle of the Century, Marc' Antonio Cesti, a scholar of Carissimi, brought recitative to perfection, Rossi and Legrenzi flourished, and Alessandro Scarlatti surprised the world by the brilliancy and fertility of his genius. In the beginning of the XVIIIth Century, we have Gasparini, Giovanni and Antonio Buononcini, Benedetto Marcello, a Noble of Venice, but more to be esteemed for his well-known compositions of the Psalms to the Paraphrase in Italian of Giustiniardi, Pergolesi, Vivaldi also a violin writer, the Baron d'Astorga, and lastly, Nicolo Porpora, all classical and justly celebrated writers. The remark relative to the decline of madrigal writing equally applies to the neglect of the cantata in the present day. It has been abandoned for nearly three quarters of a century, and perhaps from the same causes. Those who are desirous of pursuing an inquiry into national melodies, which come under the head of Choron's fugitive pieces, will do well, amongst other Works, to consult the *Essai sur la Musique Ancienne et Moderne*, 4 vols. 4to. by J. B. Laborde. Though there are many important errors in it, and the harmonics are bad, the melodies, at least a large proportion of them, may be trusted to.

Music. Modern.

Music of the Drama.

Early Lyric Drama.

The Lyric Drama of our time is, doubtless, very unlike those representations, both sacred and profane, whereof the ancient writers speak, for we have authority for asserting that such were in existence since the XIIIth Century. The earliest which can be identified is an *Orfeo* of Angelus Politianus, composed about the year 1475; and in 1480 a Musical Tragedy is mentioned as having been performed in Rome. It is believed that in 1555, *Il Sagrifizio*, a Pastoral Drama of Agostino Beccari, was set to Music by Alfonso della Viola, for the Court of France, and that an Opera was performed at Venice in 1574, in honour of Henry III. passing through that city from Poland to take the Crown of France, to which he had succeeded on the decease of his brother Charles IX. It can scarcely be supposed that at this period the Lyric Drama had a style peculiar to itself; it was most probably a mixture of the Church and Secular Music of the day; nor was it till the perfection of the recitative that the Drama can be said to have a style of its own, of which the following account is said to be the origin.

Bardi, Strozzi, and Corsi, three Florentine amateurs, dissatisfied with the attempts which in their time had been made to bring Dramatic Poetry to perfection, hit upon the expedient of engaging one of the best of their Lyric Poets to write a Drama which should be set to Music by one of the best Musicians of the period. Rinuccini was the Poet selected, and the subject *Daphne*. Peri applied to it a species of recitation in Musical notes, but without their regular support and marked time. The composition was, in 1597, performed at the house of Corsi, and met success so decided, that Rinuccini determined to write two other Works of similar nature, *Euridice* and *Ariana*. In the year in which the latter was performed at Florence, an Oratorio, entitled *Di Anima e di Corpo*, with the same description of recitative composed by Emilio del Cavaliere, was performed at Rome. This Work, as well as that of Peri, were published in 1608; the two authors claiming in their Prefaces the invention of recitative. G. B. Doni allows the invention to neither, alleging that it belonged to Vincenzo Galilei, father of the celebrated Astronomer, who, as well as Bardi and others, sensible of the defects of the Music of that Age, employed himself in endeavouring to recover the Musical declamation of the Greeks, imagined the recitative, and applied it to Dante's Episode of Count Ugolino. In this style he also composed the *Lamentations of Jeremiah*, and performed the piece himself with the accompaniment of a viol. Giulio Caccini, a young Roman singer, frequented the house of Bardi, and improved recitative; Peri soon became his rival, and both, as Doni says, united in setting Rinuccini's words of *Daphne*. Peri afterwards composed *Euridice*. Claudio Monteverde, of whom mention has already been made, followed hard upon these with the *Ariana*, which was put into recitative by him. Whatever may be the true state of this case, it is certain that of the above Works the *Euridice* of Clari was the first which was publicly performed, and that its representation took place in 1600 at Florence, on the marriage of Henry IV. of France with Mary of Medicis. Nearly the whole of the Opera, Peri's *Daphne*, is in recitative, and the parts to which the word *aria* is prefixed, are scarcely distinguish-

Music. Modern.

able from the others by the appearance of air. Up to the middle of the century this observation generally applies.

Opera of Jason.

In the Opera of *Jason*, set to Music by Francesco Cavalli, a fertile writer of Operas between 1637 and 1667, Dr. Burney observes, that the grave recitative began first to be interrupted with the ornamented sort of stanza called Aria. This Opera was set in 1649, yet the airs were insipid, generally minuet time, and varying constantly. The Operas of Cesti exhibit considerable progress. His most celebrated, *La Dori*, first appeared in 1663 at Venice, and was also frequently performed in the other principal cities of Italy. Cesti was moreover a great writer of Cantatas. He has been untruly stated to have been a scholar of Carissimi. At this period the Opera began to degenerate into *Spectacle*, a practice now carried to such an extent that the machinist and decorator in the present day are almost as much admired as the Poet and Musician. An immense number of composers followed those we have named, many of them possessing genius and talents of a high order, such as Gasparini, Perti, Colonna, Lotti, and the celebrated Alessandro Scarlatti, whose pupils Leo, Vinci, Domenico Sarro, Hasse, Porpora, Feo, Abos, and Pergolesi, in the early part of the XVIIIth Century, gave power to the words by making the melody expressive of the sentiment. They were seconded in their efforts by the Poets of the day, such as Zeno and his pupil Metastasio. The next series of composers comprehends a list of names equally celebrated, Jomelli, Piccini, Sacchini, Guglielmi, Traetta, Anfossi, Terradellas, and others. Among the pupils of these Paisiello and Cimarosa appear.

Gluck.

It is to Gluck we owe the perfection of the Lyric Drama; that great master died at the age of seventy-three, in the year 1787. His Opera of *Orfeo* obtained the honour of being the first ever printed in Italy, the brilliant success of which induced the composer and his Poet Calzabigi to unite their talents on the tragic subject of *Alceste*, an Opera first performed at Vienna in 1768. This was printed in 1769, and for the two succeeding years after it was brought out, no other Drama was allowed to be performed at the Court Theatre. The Dedication prefixed to it by himself we shall quote, inasmuch as it explains the previous state of the Science by showing what he thought ought then to be attended to. "When I determined, he observes, "to compose Music for this Poem, I proposed to myself to shun various abuses in composition, that the vanity of singers, or excessive complacency of composers had introduced, and which had rendered the Italian Opera a most fatiguing and ridiculous, instead of a splendid and beautiful spectacle; I endeavoured to reduce Music to its legitimate purpose, which is that of seconding Poetry, in order to strengthen the expression of the sentiments and the interest of the fable without interrupting the action or weakening it by superfluous embellishments. It struck me that Music ought to aid Poetry, as vivacity of colouring, and a happy agreement of light and shade, strengthen the effect of a correct and well-designed Picture, by animating the figures without altering the outline. I have, therefore, never in this Opera interrupted a singer in the warmth of a dialogue in order to introduce a tedious *ritornello*, nor have I stopped him in the midst of a discourse, to display his agility of voice in a long cadence. I have never deemed it requisite to hurry over the second part of an air where it consisted of the most impassioned and important portion of the subject, in order to repeat the words of the first part four times over; or to finish where the sense does not conclude, in order to give the singer an opportunity of showing that he can vary a passage in several ways and disguise it in his own peculiar manner. In short, I have attempted to reform those abuses against which good sense and good taste have so long declaimed in vain. I have considered that the overture ought to prepare the audience for the character of the coming action and its subject; that the instrumental accompaniments should be used only in proportion to the degree of interest and passion of the Drama; and, also, that it is principally requisite to avoid too marked a disparity in the dialogue between air and recitative, in order not to break the sense of a period, nor interrupt in a wrong place the energy of the action. Lastly, I have thought that I should use every effort in aiming at simplicity, and have, accordingly, avoided making any show of difficulties at the expense of clearness. I have set no value on novelty, unless it naturally sprang from the expression of the subject. In fine, there is no rule of composition that I have not willingly sacrificed for the sake of effect." Gluck became the model of his contemporaries, Piccini, Sacchini, &c., and the Art seemed fixed on a firm basis, except as the changes of melody would act on it, in which respect, judging from present appearances, it is impossible to foresee the limit. The improvement of instrumental Music towards the end of the last century caused a sensible change in that of the Drama, by composers introducing into Operatic movements the system of the symphony. Haydn, Mozart, and Cherubini, and since them Weber, Spohr, Rossini, and all the modern School, in some degree have wrought on this plan, which, however, has one disadvantage, namely, that of often suffering the vocal parts, which are truly the principal, to be eclipsed by those which ought to be subordinate.

Haydn, Mozart, and others.

Comic drama.

We have in the above observations confined our notice to the Lyric Tragedy, but it may easily be conceived that the Comic Opera, the Opera Buffa, &c. underwent changes in a similar manner. The earliest Lyric Comedies known are of the XVIth Century, such are the *Sacrifizio* of Beccari, by Alfonso della Viola, in 1555; *I Pazzi Amanti*, in 1569; *La Poesia rappresentativa*, 1574; *La Tragedia di Frangipani*, by Claudio Merula; *Il Re Salomone*, 1579; *Pace e Vittoria*, 1580; *Pallade*, 1581, &c.; *L'Anfi—Parnasso*, by Orazio Vecchi, 1597, all which were represented at Venice. They are in the madrigal style, which was not very appropriate to the Stage. From the want of instrumental accompaniments, monologues, in order to obtain harmony, were sung by several voices; and recitative was at this time unknown in Lyric Comedy. Many Comic Operas were produced during the XVIIth Century, without entering on the details of which, were we acquainted with them, we arrive at the era above-mentioned when Scarlatti and his pupils infused expression into Dramatic Music. Among them, Pergolesi distinguished himself by the introduction of declamatory modulation into Dramatic Music. Although the masters generally wrote Lyric Tragedy as well as Comedy, Niccola Piccini, was particularly celebrated for the latter, and surpassed his contemporaries in his *Buona Figliola*. Comic Music was enriched by the genius of Guglielmi, Paisiello, and others, but all became eclipsed by the splendid productions in this style of Mozart, upon which to the present period all composers have more or less founded their productions.

Music. Modern.

Music. Modern.

Instrumental Music.

Different instruments.

Instruments may be divided into stringed, wind, and vocal, as respects their sonorous properties; into six species, as respects their mechanism, namely bowed, wind, keyed, stringed, percussible, and mechanical instruments. At the head of these must be placed "the human voice divine," the most beautiful, as well as the type of them all. We shall not enter further on this part of the subject by inquiring into those instruments used among uncivilized nations, but confine our notice to those employed by the educated Musician. These are the violin, viola, or tenor violin, the violoncello, or bass, and the double bass, bowed instruments. The German flute, clarionet, oboe, bassoon, horn, trumpet, trombone, serpent, fife, and flageolet, wind instruments. The harpsichord, spinet, pianoforte, and organ, keyed instruments. The harp, guitar, lyre, and mandolin, stringed instruments. Drums of different sorts and cymbals, instruments of percussion; and, lastly, the bird or hand organ, and bulafo, or Barbary organ, mechanical instruments.

Single Music.

Single Music is that specially composed for a single instrument, whether produced by that one instrument, or to increase the effect accompanied by one or more instruments in addition and subservient to the principal one. This is the *solo* and *accompanied solo*, whereof the concerto is the more refined and brilliant species. The style of a solo of course is dependent on the extent and nature of the instrument, hence there are as many styles of solos as there are instruments: but as the violin is the principal instrument in the orchestra it will be useless to notice any other; and in our remarks we shall merely touch upon some Historical points relative to the construction of studies, fantasie, capricci, sonate, concerti, &c.

Construction.

The construction of solos, simple or accompanied, includes their melodic form and the choice of the instruments employed. The former is still subject to change, and without fixed rules. The same holds with the choice of the instruments, from the Sonata, the simplest, to the Concerto, the most complicated. Corelli seems to have been the person who fixed the bounds of the sonata, which first appeared during the XVIIth Century. Torelli, his contemporary, invented the Concerto bearing the title of *Concerto grosso*, employing at first but five instruments, namely, the quartet, with the leading or principal part superadded. Benda and Stamitz added wind instruments to these compositions, and thus laid the foundation of the symphony. In instrumental Music, as in singing, great changes have taken place, both as respects taste and style. They have doubtless been much influenced by the co-existing styles of vocal composition. When Dramatic Music first rose under the hand of Corelli, it was dry and scientific. Expression was given to it by Geminiani. Under Tartini it attained a very high degree of expression, both in composition as well as execution. Of Tartini, Burney observes that he was the principal Italian theorist of the last century; and that though his system of harmony has been confuted in the scientific part, yet there are frequently found in his writings such admirable ideas, traits of modulation, and curious harmony, as are invaluable to practical Musicians. Soon after Tartini's time, the Concerto was greatly improved, particularly by Jarnowick, (the favourite violin pupil of the celebrated Lulli,) who died at Petersburg in 1804, and by Nicolo Mestrino, twelve of whose Concertos were published at Paris in his lifetime, and who died in 1790, at the age of forty-nine. Both these, however, were far surpassed by Viotti, who gave the Concerto a character peculiarly his own, and brought it to a degree of perfection which seemed incapable of being surpassed; yet the writer of this Essay, who had the good fortune at an early period of his life to hear that master, has since heard several players, Kiesewetter, Baillot, and others, who have left Viotti far behind.

Music. Modern.

Concerted pieces.

What has been said of solos applies also to Concerted pieces, by which is understood instrumental Music with different parts, which are all equally obligato, from each having its appropriate part, and taking up the strain in its turn, the other parts then becoming accompaniments. These two methods are practised equally in the duet, trio, quartet, quintet, and other Music, where each instrument has its separate part; also in the symphony, where the parts are multiplied in number for effect, according to certain proportions. Boccherini, who died at Madrid in 1806, at the age of sixty-six, was the first (1768) who gave to the trio a fixed character; after him came Fiorillo, Cramer, Giardini, Pugnani, and lastly Viotti. To Boccherini we are also indebted for the quartet as now fixed, in which he was followed by Giardini, Cambini, and in another School by Pleyel, Haydn, Mozart, Beethoven, and many other celebrated men. Boccherini also composed the quintet, and has been surpassed by others as well as by Mozart and Beethoven.

Symphony.

The Symphony, much improved since the middle of the XVIIIth Century by Gossec, Toeski, Wanhall, and Emmanuel Bach, was brought to perfection by Haydn. Mozart and Beethoven have equalled him, but, all things considered, we can scarcely admit that he has been surpassed by those surprising writers. Thus within the space of three centuries (from 1550) all parts of the Musical system, namely melody, the principles of Musical construction and design, and every species of composition, have arrived at a degree of excellence hardly to have been hoped, and perhaps not to be excelled.

Of the different Schools.

The Italian.

Padre Giambatista Martini, in his *Saggio Fondamentale Pratico di Contrapunto*, published in 1774, reckoned five great Schools in Italy, namely, the Roman School, which comprehends Palestrina, the two Nanini, Orazio Benevoli, and Francesco Foggia; the Venetian School, comprising Adrian Willaert, Zarlino, Lotti, Gasparini, and his scholar Marcello; the Neapolitan, in which the leaders are Radio, the Prince of Venosa, Leo, and F. Durante; the Lombard School, including Porta, Monteverde, Parmegiano, and Vecchi; and, lastly, the Bolognese School, comprising Rota, Giacobbi, Colonna, and Perti, to whom Sarti and the Padre Martini himself may be added. The general divisions, however, of the Schools are of Venice and Lombardy, of Rome and Bologna, and of Naples. All the Schools of Italy are characterised by a profound knowledge of the principles of the Science, added to much grace and expression, nevertheless each School has peculiar features of its own. Thus the first has been distinguished by energy and strong colouring, the next by science and purity of composition, and the last by great vivacity and true expression. From the time of Gregory downwards, Italy has always been the cradle of Music, though it was in an exhausted state during the period of the Middle

Music. Modern.

Ages, when the Country was the scene of continual wars; and it is observable that from the XIIIth to the XVIth Century, the greatest improvement in the Art was attributable to the French and Flemings; the School of the latter, which was in truth the foundation of all that afterwards existed in Europe, having been destroyed and ruined by the Wars in Flanders towards the close of the XVIth Century. The French, from their proximity to and intercourse with the Flemings, partook of their Musical taste, and at that time the Italian chapels, even at Rome, were constantly supplied with singers from Flanders and Picardy, and the compositions of the writers of those nations were continually sung. Naples and Milan invited them, and a great uniformity in Music existed in all the nations of Europe. Though the Italians followed the same principles, the fact of none of their Works of that period being quoted, proves that they then cultivated the Art with little success. Italy began to show its powers about the middle of the XVIth Century, at which period Palestrina appeared, but he went into France to study, where he was the pupil of Goudimel, and afterwards became the head of the Roman School. The Italians owe their excellence to ancient Ecclesiastical counterpoint, to which, having received it from the Flemings, they were the first to give sentiment. They invented phrases and melodic periods, and moreover created tonal harmony, in which latter respect they were so superior to other nations, that the chord formed by the second and leading note of the mixed mode has long been called the Italian sixth, from its being generally believed that the Italians were the inventors of it. They likewise brought counterpoint to perfection, and it is to them that fugue, canon, and all intricate counterpoint owe their chief beauties, and though all the Schools of Italy seem to have had a share in the work, the greatest fame attaches to those of Rome and Naples. It was in Italy that Chamber Music at an early period rose to so high a pitch of excellence, that it seems almost exclusively to belong to that Country; whether it consist of madrigals, cantatas, canzoni, or the like, it flourished in Italy full of grace and beauty. The Theatrical style almost exclusively belonged to Italy. It first appeared at Florence, and was raised to perfection at Naples, having been previously attempted by all the other Schools. In short, the Italians have achieved every sort of vocal composition, and have moreover been, even in instrumental composition, the instructors of Europe, for to them are we indebted for the best models in that branch of the Art. From the Sonata to the Concerto they invented all the species of instrumental Music. Corelli, Tartini, and their pupils cleared the path for the writers of other Countries in violin Music. So with regard to the harpsichord from Frescobaldi to Clementi. It must, however, be conceded, that though Boccherini by the invention of the quintet led the way to that of the Symphony, the Italians have no claim to it.

Vocal performers of Italy.

The great superiority both in execution and numbers of the singers of the Schools of Italy over the rest of Europe is worthy of inquiry, if our space allowed us to indulge in speculation on the subject. Choron says it arose from three causes, the two first whereof belong to them exclusively, and the third is the natural consequence of the others; namely, the climate, the organization of the inhabitants, and the excellence of their rules; and we are inclined to give credit to his supposition at all events of the two latter grounds. Haydn said that the climate of Germany injured the voice of Italian singers, and that he frequently sent those belonging to Prince Esterhazy's Chapel to Italy to improve their organ.

Music. Modern.

Instruments.

In addition to the violin and harpsichord,—on the former of which Corelli, Tartini, and Viotti, and on the latter Frescobaldi and his School, instructed all Europe,—the Italians invented and brought into use the bassoon, the trombone, as well as many other instruments. In the present day, and perhaps it has always been the case in Italy, instruments are considered only as the means of accompaniment, and, except at Naples, we doubt whether a difficult Symphony could be well performed. Certain it is, that the writer of this Essay never had the good fortune to hear one executed in a way above mediocrity, but he allows that he never witnessed a *public* performance of one. The number of their composers is nevertheless very great, all well instructed, though musical theory is confined chiefly to the amateur.

Present state.

Since the latter part of the last century there seems a considerable decay in the Music of Italy in the number and excellence both of composers and performers. Singers of the first and second rank were always to be found in abundance; and composers, though not in equal numbers, were yet sufficient to mark the Country as the nursery of Music. Now, we rarely have more than two or three singers of the first order, though the number of the second may perhaps be equal; and good composers are no less scarce. Choron attributes this to the preference given to Dramatic Music, to acquire considerable fame in which a profound knowledge of the Art is not requisite, however useful it may be. Italy, however, still preserves a high rank in respect of her Music relatively to the other nations of Europe, and can boast of eminent writers, and it is in that Country that the best vocal instruction may yet be obtained.

The German School.

Numerous Schools.

In Italy, as in Germany, there are almost as many Schools as Capitals. The Italians prefer pure, the Germans brilliant harmony. The German and Flemish Schools are nearly coeval in their origin, hence the German is even prior to the Italian Schools. Germany was the scene of so many Wars towards the close of the XVIth and commencement of the XVIIth Century, more especially the Thirty Years' War, that the Arts were entirely neglected in that Country during the above period. It is certain that Germany was then far behind Italy, and that it was not previously to the end of the XVIIth Century, that Keyser, who was born at Leipsic in 1673, and composed one hundred and seven Operas, gave an impulse to the Germans, which it would seem they are destined never to lose. Since the renewal of the Art, the Germans have followed the Italians in all that regards the foundation of the system. They have not perhaps equalled them in vocal Melody, but in instrumental Music they have surpassed, and continue to surpass, all other nations. The Gregorian chant was of course imported from Italy, but the Germans have a peculiar species of Music called *Chorals*, in which the whole congregation joins with most imposing effect. Their counterpoint, fugues, canons, and all that depends on plain chant, are not to be compared with those of Italy. In Church Music of the accompanied style, the Masses of Graun, Haydn, Mozart, and Beethoven, leave all others far behind. Nor are their Oratorios, such as the *Ascension*

Music. Modern.

by Bach, the *Death of Jesus* by Graun, the *Messiah* by Handel, and the *Creation* and *Seasons* of Haydn, in any degree inferior to their Church compositions. Choron classes the *Creation* and *Seasons* under the head of Cantatas, and denominates them as belonging to the Chamber style, but we do not concur with him, however we may be called to account for our presumption in differing from so learned and competent a writer.

Theatre.

Though not so early as the Italian, the German Theatre is of ancient standing; but it attained little celebrity, till at the close of the XVIIth Century Keyser began to compose for the Theatre at Hamburgh, then in a flourishing condition. Few of his Works remain; he was, however, an industrious composer. Fancy and originality were the characteristics of his Works, and the vigour of a fertile imagination is discernible in all of them. Hasse grafted the manner of the School of Naples on that which Keyser had introduced. Thus improved, it became with some modifications and the later improvements in instrumental accompaniments, the style of Graun, Naumann, Gluck, Haydn, and even of Mozart.

nstru- ıental.

It is from its instrumental Music that the German School has acquired all its lustre and reputation. On the violin, though the composers of Germany trod in the steps of Corelli, their success entitles them to the rank of inventors. Whilst Locatelli and Geminiani, Corelli's most distinguished pupils, were spreading his School in Holland and England respectively, Benda and Stamitz had begun in Germany, and their successors, Leopold Mozart, Fraenzl, and Cramer were improving the state of violin Music in a surprising manner. So on the harpsichord, Kerler and Froberger, who taught in the French and Italian Schools, were succeeded by men whom to name is sufficient eulogy; we mean John Sebastian Bach and his children, Haydn, Kozeluch, Mozart, Dussek, and Cramer, besides many others. So with respect to their wind instruments a species of composition was introduced which appears almost exclusively in Germany. In instrumental concerted Music the names of Haydn, Mozart, and Beethoven have already been mentioned, and the first especially as being almost the inventor of the Symphony. To these may be honourably added, Weber, Spohr, Hummel, and many others of our own time. A practice which has long subsisted, and is not met with in any other Country, has greatly contributed to the spread of Music in Germany. In all the Public Schools, as well in villages as in cities, Music is taught to children at the same time at which they teach them to read and write; and it is remarkable, that wherever the Jesuits had Schools and Colleges, they engaged with great activity in this branch of education, whilst in no other Country was the Order given to patronize the Fine Arts. The learned Lami, who many years since published a Periodical Journal at Florence, was one day showing a friend the sights in that City. At the celebrated Gallery of Pictures at the Palace Pitti, the stranger said to him, *Voilà le berceau des arts*, to which Lami replied, pointing to a Convent of Jesuits close by, *Et voilà leur tombeau*. But it was a principle with the Jesuits wherever they were established, to accommodate themselves as much as possible to the pursuits of the Princes and People, and on their fixture in Germany having found Musical instruction there universal, they encouraged it as much as possible. Another circumstance which has much contributed to the great progress of Music in Germany, has been the enlightened view which almost all their Sovereigns have taken of it even by their own compositions and practice. In Musical literature the Germans have produced a considerable number of excellent Works. Not to mention numberless Treatises on ancient and Church Music, as well as controversial Works on counterpoint, we will cite the *Gradus ad Parnassum* of Fux, dedicated to the Emperor Charles VI., and printed at Vienna in 1725, lately, if not still, the elementary Work used in the Schools of Italy; Marpurg's *History of Music*; many Treatises by Kirnberger and others, such as E. Bach, Matthison, Knecht, Vogler, Albrechtsberger, Forkel, Gerbert, Nickelman, and Koch.

Music. Modern.

Musical literature.

French School.

Music neglected in France at an early period.

During the XIVth and XVth Centuries, the progress of the French in the Arts was very slow, and particularly in that of Music. But in the reign of Francis I. there existed as many celebrated Musicians in France, as in Italy, Germany, Flanders, and England. Those, however, who distinguished themselves in France, were not Frenchmen. Both Orlando di Lasso and Claude le Jeune belonged properly to the Flemish School. So also did Josquin de Prez, who was much esteemed at the Court of Louis XII., and to whom the early Music of France is under great obligations. A curious anecdote is told of a composition by Josquin, which is published in the *Dodecachordon* of Glareanus. Being engaged to teach Louis singing, that Monarch being extremely deficient in flexibility of voice, defied the master to write a piece of Music in which he could possibly sustain a part. He did, however, compose one, a canon of two parts, to which he added two other parts, one whereof had to sustain only one note, the other passing only from the key note to the fifth. Of course, he gave the Monarch the choice of parts, who out of modesty chose that with the single note. Antoine Brumel, a contemporary of Josquin, and like him a pupil of the celebrated Ockenheim, is the earliest composer of counterpoint in the French School. At this period, the French were behind other nations in writers on the theory of Music, as well as in composers. This state, from the death of Francis I. to the end of the reign of Henry IV., may doubtless be fairly attributed to the internal troubles of the Country. Certon, Master of the children of the Sainte Chapelle of Paris, in 1546, published thirty-one of the Psalms of David in Music of four parts. In a collection of motets published at Venice, about 1544, one appears also by Certon, to the words *Diligebat autem eum Jesus*. This is in five parts, and in it the tenor sings the plain chant of a prayer to St. John repeated upon the key note and its fifth (after a rest of two bars) from the beginning to the end of the piece. A little after this, Didier Lupi set to Music his *Chansons Spirituelles*; Guillaume Bellen, *Canticles*, in four parts; Philibert Jambe de Fer, *the Psalms of Marot*; Pierre Santome, the *whole of the Psalms*; and Noë Faigneut *songs, motets, and madrigals*, in three parts. The name of Crespel also appears in the best collections of motets and songs published in the middle of this century, some of which prove him to have been a profound master of counterpoint. Ronsard, whose poetical fame extended through the reigns of Henry II., Francis II., Charles IX., and Henry III., was extremely partial to Music, and sang very agreeably. His Poetry was set to Music, especially by Antoine Bertrand, who published the collection in 1578, in four parts, and by François Reynard, in four

Early composers.

Music. Modern.

and five parts, in the following year. Ronsard died in 1585, and his funeral, at which Cardinal Perron pronounced the oration, was so pomposly celebrated and so numerously attended, that the Cardinal de Bourbon and many other Princes and Nobles could not pierce the crowd. The Music was composed expressly for the occasion, not in plain chant, and accompanied by instruments. The most celebrated Musician of the reign of Charles IX. was the unfortunate Claude Goudimel, massacred among the other Protestants at Lyons, in 1572. Though a native of Franche-Comté, he lived all his life in France, and certainly belongs to the French School. Up to the close of the XIXth Century, a few other names, but of less merit, occur, such as Jean de Castre, Louis Bisson, Nicholas Duchemin, François Roussel, Jean Pervin, Nicolas de la Grotte, Jean Chardavoine, writers of madrigals, and also Jean Serven, who set the Latin Psalms of Buchanan in four, five, six, and eight parts. But France derives little Musical reputation from any of their compositions. Henry III., in 1581, on the marriage of his favourite, the Duke de Joyeuse, with Mademoiselle de Vaudemont, the Queen's sister, lavished great expense in fêtes, balls, and diversions. It was on that occasion that Claude le Jeune wrote his Ballet, *Ceres et ses Nymphes*, a spectacle then new to France. The Music to the dances was composed by Beaulieu or Baltazarini, and Salmon. François Eustache de Caurroy, born in 1549, received from his contemporaries the title of *Prince des Professeurs de Musique*. He was Master of the Chapel to Charles IX., Henry III., and Henry IV. There is extant of his composition, a Mass for the Dead, which was formerly sung once in every year at the Cathedral Church of Nôtre Dâme in Paris, and a posthumous Work, published in 1610, entitled *Mélange de la Musique d'Eustache de Caurroy*. During the short reign of Henry IV. France had scarcely recovered from the horrors of her Civil and Religious Wars. His son, who ascended the throne at the early age of six years, was in his youth much attached to Music. The principal composer of Church Music during the reign of Louis XIII. appears to have been Arthur aux Couteaux, but the best writer of secular Music was Jean Baptiste Boesset, and he was the favourite at Court. The best account of French Music during this reign is to be found in the *Harmonie Universelle* of Mersennus, a large folio volume, published at Paris in 1636.

XVIIth Century.

Dramatic Music.

Ottavio Rinuccini, a Poet who came into France with Mary of Medicis, gave the French their first notion of the Lyric Drama. None, however, are mentioned as having been performed during the reign of Louis XIII., his Minister Richelieu rather patronizing the literary French Drama. Mazarin was the person who first caused an Italian Opera to be heard in France, which was performed at the Louvre in 1646; and out of this sprang the French Opera. Perrin, Master of the Ceremonies to Gaston, Duke of Orleans, in 1670, aided by the Musical talents of Cambert, brought out the first French Opera, under the title of *Pomona*, at the Tennis Court in the Rue Mazarine. Two years after this, Lulli obtained the privilege of performing them, which he enjoyed till his death in 1687. Lulli, born of obscure parents, near Florence, in 1633, was brought by the Chevalier de Guise into France at the age of thirteen years, on account of his Musical talents. He was received into his patron's house among the officers or servants of the kitchen, upon which Ginguené observes, *C'est un pays passablement barbare, que celui où reconnaissant dans un jeune homme un talent distingué pour les beaux arts, on le place parmi des cuisiniers et des marmitons.* Louis XIV. desired to hear him play, and was so pleased with his performance, that he engaged him in his service. Lulli commenced his services by the composition of Ballets for the Court, which gave so much satisfaction that the King would listen to no other than his Music. When the Opera sprang up, Perrin surrendered his privilege to Lulli, who entered into an engagement with Quinault, to furnish him with the words of an Opera every year. The result of this engagement was the production of the Operas of *Les Fêtes de l'Amour et de Bacchus*, *Cadmus*, *Alceste*, *Thésée*, *Atys*, *Isis*, *Proserpine*, *Persée*, *Phaeton*, *Amadis*, *Roland*, and *Armide*. At the time that Lulli was placed at the head of the band of *les petits violons*, very few Musicians in France were able to play at sight, and a person was accounted an excellent master, who could play thorough bass in accompaniment to a scholar. He contributed greatly to the improvement of French Music, which up to his time was infinitely surpassed, especially in sacred Music, by the English masters. In his overtures, he introduced fugues, and was the first who in chorusses made use of the side and kettle drums. It is astonishing that the French were so long stationary in Music after his death. From the production of his last Opera in 1686 to 1733, when Rameau brought out his first Opera, it would have been thought a mad enterprise to have endeavoured to surpass Lulli. The names of the composers who filled up this interval, though obscure, are less so than their Works. Colasse, Lulli's disciple, finished, in 1687, his Opera of *Achille et Polixène*, of which the first act only was found among Lulli's papers. Between that time and 1706 he composed eight Operas for the Académie Royale. During the same period, Charpentier, Desmarest, Campra, Coste, and Destouches, of whom Campra and Destouches were the most celebrated, wrote Operas. These were succeeded by Bertin, in 1706; Mouret, in 1714; Montéclair, in 1716; Rebel and Francœur, in 1725; Blamont, in 1731; Brissac in 1733, in which year Rameau brought out his first Work. Rebel and Francœur continued, however, to compose together till 1760. During this period Instrumental Music was very slow in its progress. The best organists in France during the XVIIth Century were the father, son, and grandson Bournonvilles, and the three brothers Couperin; Chambonières, who died in 1670; Dumont, also a good composer of Ecclesiastical Music, who introduced into it violin accompaniments, by the desire of Louis XIV.; the Abbé de la Barre, so great a favourite of the King, that the situation of organist which he held was at his decease divided between four organists who did the duty quarterly; lastly, Lalande, who began to flourish in 1684, and was the best writer of Sacred Music in France towards the close of the XVIIth Century and the commencement of the XVIIIth. We proceed to one who formed an epoch in the French School.

Lulli.

Rameau.

Jean Philippe Rameau, born at Dijon in 1683, having grounded himself at an early age in the rudiments of Music, left his native Country and wandered about with the performers of a German Opera. At the age of eighteen he composed a Musical entertainment which was represented at Avignon. He then became a candidate for the situation of organist of the Church of St. Paul, in Paris; failing in which attempt he almost determined to decline that branch of his profession, when

Music. Modern.

the offer of the place of organist to the Cathedral Church of Clermont in Auvergne prevented him. In retirement in that City, he pursued the theory of the Art with great industry, having there written his *Traité de l'Harmonie*, printed at Paris in 1722, and his *Nouveau Système de Musique Théorique*, at the same place in 1726. But his most celebrated Work is the *Demonstration du Principe de l'Harmonie*, in which his Countrymen say, he has shown that the whole depends upon one single and clear principle, namely, the fundamental bass; and their admiration has carried them so far as to compare him in this respect to Newton, who from the principle of Gravitation assigned reasons for some of the most remarkable phenomena in Physics; hence they style Rameau the Newton of Harmony. His first Opera was *Hippolyte et Aricie*, in 1733, between which year and 1760 he composed twenty-two Operas. Rameau died in Paris in 1764. He was doubtless a philosophical artist, and it is no small testimony of his merit that Handel always spoke of him in terms of great respect. From the few Works by him which it has fallen to our lot to have heard, we cannot say that he is to our mind a pleasing composer. He is accused of having pilfered his best airs from Italy, which rather a severe critic says he did not quite smother by his barbarous art. His contemporaries and successors in the Opera, and the last of the true French School, were Mondonville from 1742 to 1758, Berton 1755 to 1775, D'Auvergne 1752 to 1773, and Trial 1765 to 1771. To these may be added, La Borde, Floquet, J. J. Rousseau, Duni, and Philidor. After whom came Monsigny, Gossec, and Grétry, who completed the improvements in French Lyric Comedy. The contemporaries and imitators of these latter were Martini, Delayrac, Champein, and others. The reform which had now commenced in the French Music, was consummated on Gluck's producing in Paris, in 1774, his *Iphigène*, which was soon after followed by other Works of that master. His rivals were Sacchini and Piccini. After these came Vogel, Lemoyne, and others. The galaxy of celebrated men whom we have already named, were followed by French composers of very splendid talents, the principal of whom, in Serious Opera, were Berton, Le Sueur, Catel, and Mehul, and in Comedy the same, with the addition of Boildieu, Eler, Gaveaux, Kreutzer, Plantade, Persius, and Solie. France became, also, the resort of Germans and Italians, such as Cherubini, Della Maria, Nicolo, Steibelt, Spontini, Tarchi, and Winter, who succeeded to a great extent on the French Theatre.

In concerted Music we can scarcely allow the reputation to France which some are inclined to claim for her. It must, however, be conceded, that the quartets of Davaux, and the symphonies of Gossec, preceded in France those of Haydn. In Music, for single instruments, they are justly entitled to our praise Latterly, fresh attempts have been made, but in such as we have heard, we do not think with enough success to require particular notice.

Music. Modern.

Instrumental and vocal execution.

The French School of the present day demands more attention for its merit in the different branches of execution than for any other point. Choron distinguishes their excellence in this respect by three epochs. That of Lambert in the time of Louis XIV.; of Rebel and Francœur in the time of Louis XV.; and lastly, the modern epoch, wherein the style bears a close analogy to that of melody, or an Italian style, so modified as to be suitable to the French Language. Each of these periods had celebrated singers. The first had Boutilon, the second Jelyotte, the third Garat, Chardini, and others. But the instrumental style in respect to execution, and especially on the violin, is that in which the French particularly excel. Instrumental Music is still studied with great ardour by the French, and on the violin they are at present unrivalled in Europe; the same may be said of their success on the piano-forte, with a few exceptions. But on the organ we can scarcely believe they ever had a performer who could place his hands on the keys in competition with our Samuel or Charles Wesley, or Novello, and many of that School. Their orchestras are magnificently arranged; to compare them with those of Italy would be no compliment to a Frenchman; but when the reader is assured that they surpass those of Germany, where instrumental Music is so highly cultivated, he may form some idea of the value of their Conservatory, which is the nursery of their performers.

Musical Literature.

Choron, the best authority on the point, observes, that the Musical Literature of France is of little value; he says, that among her Works of this kind, some were compiled by artists who knew not how either to think or write, and are as vicious in their principles as in their plan. That others, edited by learned men, or literati, ignorant of the Art, teach only systems and errors. He excepts, however, the methods which concern execution, and particularly those published by the Conservatory of Paris; also in respect of composition, the *Treatise on Harmony*, by Catel, who was a pupil of Gossec, printed in 1802, and adopted by the Conservatory, a Work now very generally received and appreciated throughout Europe. It contains a theory which appears a simplification of Rameau's, but is, in fact, the result of more observation. Choron's own Work, entitled *Principes d'Accompagnement des Ecoles d'Italie en société avec le Sieur Fiochi*, Paris, 1804; and his great Work in 3 vols. folio, Paris, entitled *Principes de Composition des Ecoles d'Italie adoptés par le Gouvernement Français, &c.* deserve our acknowledgments for the use which we have made of them. Of the last, the Editor of the *Quarterly Musical Review* truly says, "If the books on theory which our English harmonists have given the World, condense and simplify the information contained in Choron's valuable and elaborate Work, they bear no sort of comparison with the abundance of precept and example it contains."

PART II.

Notation.

Music. Gamut.

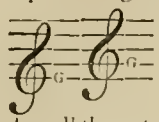
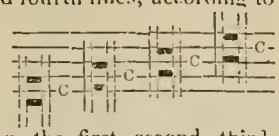
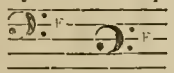
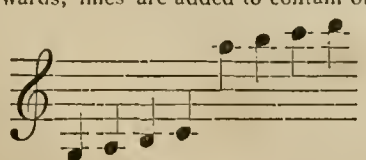
The gamut is a scale or table, believed to be the invention of Guido of Arezzo, upon which the *notes* in Music are placed. It has also been called the harmonic hand, because Guido at first used to arrange his notes upon the fingers of the hand. Some have said that it is not properly the invention of Guido, but an improvement upon the diagramma, or scale of the Grecians, and that his intention in calling his first note Γ, gamma, was to indicate that he took his scale from the Greeks. For this purpose parallel horizontal lines were necessary for the notes to rest upon, and a group of five of these lines constitute what is called a *staff*, the lines and spaces whereof are reckoned from the lowest upwards. The true knowledge and understanding of the gamut is of course the foundation of all Musical learning. The names given to the notes are six in number, *ut, re, mi, fa, sol, la*; the first the foot or gamma of the scale. The moderns have used as equivalents, (by the introduction of *clefs*, which are marks at the beginning of the lines of a song,) the first seven letters of the alphabet, *viz*. A, B, C, D, E, F, G, repeating these in the same succession as the notes move upwards; but the whole will more clearly appear by inspection of the following scheme or diagram.

		CLEFS.							
Treble, or Highest.	E								la
	D							la	sol
	C							sol	fa
	B							fa	♮mi
	A						la	mi	re
	G						sol	re	ut
Tenor, or Mean.	F						fa	ut	
	E					la	mi		
	D				la	sol	re		
	C				sol	fa	ut		
	B				fa	♮mi			
	A			la	mi	re			
	G			sol	re	ut			
Bass, or Lowest.	F			fa	ut				
	E		la	mi					
	D		sol	re					
	C		fa	ut					
	B		mi						
	A		re						
	Base	Gamma.	UT						

or,

The French have used a seventh syllable, *si*, in their gamut.

It is not our intention in the following pages to use the nomenclature of solmization, but without an in-

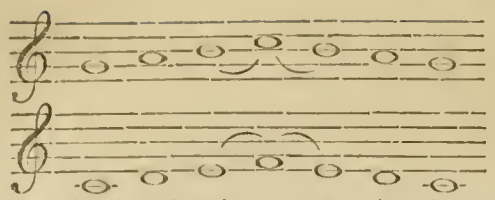
Music. troductory table of this sort, it would have been difficult for the reader to have comprehended the nature of clefs and their places; nor would he have been able to understand why the bass clef, on the fourth line, should be called the F fa ut clef; the tenor, on the third line, the C sol fa ut clef; or the treble, the G sol re ut clef; we shall, therefore, in what follows, designate the notes by the alphabetical signs prefixed to them in the diagram. It is, however, here necessary to observe that the situation of each clef, with respect to the line on which it is placed, must be accurately observed, because its position gives its name to the note on the line thus,  the treble clef placed on the first line, makes all the notes on it G, and so of any other line, though it is rarely if ever placed on any other than the second line, indeed never in the present day; the tenor clef is, however, placed on the first, second, third, and fourth lines, according to the height of the part thus,  in which case the notes on the first, second, third, and fourth lines are C respectively. The bass clef is rarely used except on the third and fourth lines thus,  whereon the notes are F respectively, the line between the dots being the place of the note. The utility of these clefs, which are a puzzle to beginners, may be felt in a moment if the reader reflect, that in pieces where many parts are written under each other, the notes correspond with each other vertically, as to the contemporaneous production of each sound, which, in Musical language, is called a *score*. Were there not, therefore, means of representing higher or lower notes than the staff itself would contain in any one of them singly, such a running up and down of the representation of the sounds, (for such are notes,) into each other would occur, that no person would be able to play or sing from it. The clefs, therefore, are nothing more than the means of confining each part as much as possible within the staff. In the old Music the writers rarely exceeded it either above or below, but modern Music has very much exceeded these bounds, especially in the bass and treble parts. In cases in which the notes go out of the staff, in either direction, upwards or downwards, lines are added to contain or receive them thus,  These lines, whether above or below, are called *ledger lines*. When the bass clef is used on the third line it is called the barytone clef, and it was formerly much used in Church Music. It, of course, raised the part in the scale, and made the bass approach nearer the tenor, or mean; it was adapted to a voice not so low as a real bass voice nor so high as a tenor. When the C, or tenor clef, is placed on the first line it is called the soprano clef, when on the second the mezzo soprano, on the third the counter-tenor, and on the fourth the tenor clef. It is evident from inspection that every removal of the clefs upward depresses or lowers the part. The G clef on the first line is rarely found except in old French Music, and is called the high treble. The young Musician cannot have too strong an impression of the importance of a thorough knowledge of the clefs, and that they are merely marks of the places of the notes F, C, and G, without the most perfect acquaintance with which all the splendid Music of the early Schools is closed to him, as well as the power of reading even a modern vocal and instrumental score.

Music.

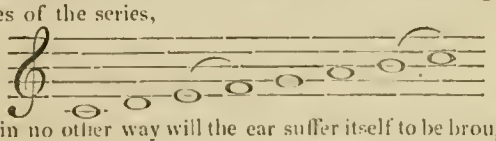
Without here entering into the exact mathematical proportion between the notes of the scale of an *octave*, that is, when to the seven notes of it an eighth is superadded, so as to begin a new series, we shall merely for the present observe, that the intervals between the degrees of the scale are unequal, some of them being nearly twice the distance of others. The larger intervals are called *tones*, the smaller *semitones*. The simplest perception we can have of two sounds is that of *unisons*, or notes equal in *pitch*, or acuteness. But this is dependent to sense on the accuracy or education of the ear, and it is necessary to refer it to a standard accessible to mankind generally. Taking therefore homogeneous strings equally stretched under precisely similar circumstances as to heat, moisture, and pressure of the atmosphere, we have a standard of measurement which indicates that the octave or note above the seven of the scale is produced by a string exactly one-half the length of that which gave out the Γ gamma of the system, the repetition of this upwards so as to produce a series of octaves above each other, is too obvious to require explanation. The acute string, or octave, obtains its acuteness or high pitch, from producing two vibrations during the same period that the lower one was engaged in a single vibration, hence the vibrations of the two meet at every second vibration of the upper one. The division of the octave so as to make it ascend agreeably to the ear, (for an equal division of its parts into tones could not be tolerated,) gives a semitone between B and C, and another between E and F. The remainder, namely those between G A, A B, C D, D E, and F G, are whole tones or sounds. Thus every octave, or series of the eight regular sounds, contains five tones and two semitones. To prevent confusion it must be always remembered, that a note and a tone are distinct things, the former is a simple sound, the latter the distance between two sounds. We have in a previous part of this Essay shown that the octave consists of two tetrachords, or series consisting of four sounds each; practically this was sufficiently near the truth, but the theory of sounds does not admit strict mathematical equality between these fourths, as respects the places of the tones whereof they are composed, as will be hereafter noticed; in this part we shall still consider that the fourths, consisting of the sounds G, A, B, C and C, D, E, F are equal, each containing two tones and a semitone, and therefore that a tune formed by one of them will be equal or the same in a different pitch to a tune formed by the other, thus,

The relative proportions of tones to each other.

Music.



The two fourths taken in succession then forming a scale, whereof the principal sound is C, from which it begins, and to which it finally ascends in degrees continuously placed, give the name of *key note* to that principal sound; and it must be further remarked, that the effect of the octave upon the ear depends upon the semitones being placed in a certain position, namely, between the third and fourth and the seventh and eighth notes of the series,



for in no other way will the ear suffer itself to be brought back to the key note in the ascending or descending scales. The great Bacon says, "after every three whole notes Nature requireth for all harmonical use, one half note to be interposed." Referring this scale to keyed instruments, such as the organ or piano-forte, it is called the natural scale, because the keys employed in it are the long white keys, in distinction from the black or short keys, which when employed involve some peculiarities, and give their use the name of the *chromatic scale*, or one, as its name imports, of a different colour, but not with relation to the difference of black and white in the keys of a finger-board.

Music.

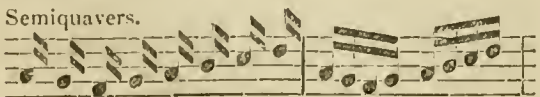
The time or measure of notation.

The period of time assigned to each note, or, in other words, its absolute duration, is known by its form, taking a unit to represent any character, all the rest must bear a strict proportion to it. Though the character known by the name of the large is now no longer in use, it was formerly often employed in Ecclesiastical Music; it is not, however, so convenient a measure as the semibreve, which is found in all modern arrangements, and which we shall therefore use in the following Table.

8	A Large .	contains in time	2 Longs .	
4	A Long .	. . .	2 Breves .	
2	A Breve .	. . .	2 Semibreves .	
1	A Semibreve .	. . .	2 Minims .	
$\frac{1}{2}$	A Minim .	. . .	2 Crotchets .	
$\frac{1}{4}$	A Crotchet .	. . .	2 Quavers .	
$\frac{1}{8}$	A Quaver .	. . .	2 Semiquavers .	
$\frac{1}{16}$	A Semiquaver .	. . .	2 Demisemiquavers	
$\frac{1}{32}$	A Demisemiquaver			

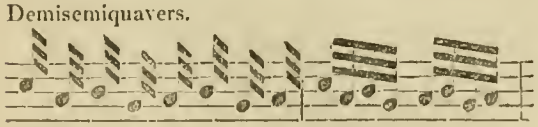
The lower denominations of these notes from the quaver are often grouped together, instead of being detached, a practice not only convenient in writing, but assistant to the eye, as under.

Semiquavers.



Detached. Grouped.

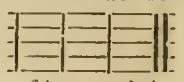
Demisemiquavers.



Detached. Grouped.

The same practice also may be, and is adopted with quavers. If a dot be added to the right hand of a note, it increases the value of such note exactly one half of its duration without it. The measure of the time or duration of a note in performance, is by long habit familiar to the Musician, and he generally regulates it by *beating time*, that is, by the raising and falling of his hand or foot, in some pieces slower, in others quicker, according to the subject of the Music to be sung or played. The ordinary common measure is a second, or sixtieth part of a minute, which is nearly the space between the beats of the pulse and the heart, the systole or contraction answering to the elevation of the hand and its diastole, or dilatation, to the letting it fall. This measure usually takes up the space that a pendulum thirty inches in length employs in making a swing or vibration. An instrument, called a Metronome, has been invented within the last few years for measuring the length of a note mechanically; it consists of a pendulum with a weight shifting on the rod, so as to increase or diminish the vibrations in number, according to a graduated scale on it.

The measures into which every Musical piece is divided are called *bars*, which are the vertical lines separating the spaces in the staff, thus,

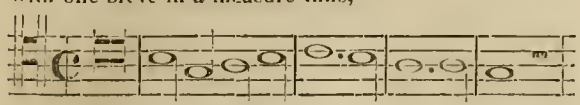


The single lines taking merely the name of bars, and the two thick lines at the end being called a *double bar*, which is placed at the end of a strain.

Common time.

The signs or characters by which the time of notes are represented, are but of two sorts, namely, *common time* and *triple time;* all have their origin in these two. Common, or double time, is of two species; first, that in which every bar, or measure, equals a semibreve in duration, or its value in any combination of notes of less quantity; the second, where a minim, or its value

Music. in less notes, takes up the time of a bar. The movements of this kind of measure are various, and there are three ordinary distinctions of them, the first whereof is slow, and is marked with a C, or semicircle, thus, at the beginning of the piece placed after the clef. The second is also a semicircle, but has a bar drawn through it thus, is rather quicker, and is often called *alla breve*, because it was formerly written with one breve in a measure thus,



The third sort of movement is very quick, and is marked thus, this, however, is now rarely used.

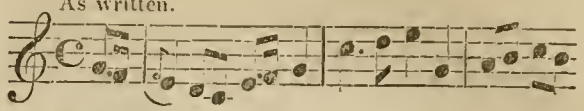
The other characters of common duple time are or or signifying the measure of two crotchets to be equal to two notes, whereof four make a semibreve.

Triple time. Triple time is of many species: it takes its name from the whole or half the bars being divisible into three parts, which are beat accordingly, the first down, the second with the return of the hand, and the last with the hand quite up; which motions the Italians express by the words *ondeggiare la mano*. It is always represented by figures placed after the clef, at the beginning of the staff, the lower one, or denominator, showing into how many parts, or notes, the semibreve is divided, and the upper one, or numerator, how many of such parts, or notes, are contained in a bar, thus signifies three minims in a bar; 2, the denominator, being the division of a semibreve or 2 minims; so signifies three crotchets in a bar; three quavers; six crotchets; six quavers; nine quavers; nine semiquavers; twelve quavers. Other species of compound triple time are to be found in some authors, but the reader, on meeting with them, and using the explanation above given, will find no difficulty in their solution.

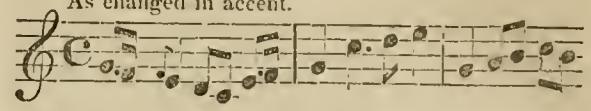
Accent. Every bar or measure is divided into *accented* and *unaccented* parts; the first are the principal, and on them the spirit and effect of the Music is mainly dependent. The beginning and middle, or the beginning of the first half of the bar, and the beginning of the latter half of it, in common time, and the beginning or first of three notes in triple time are always the accented parts of the bar. As the character of the melody is quite changed by altering the accented parts of its bars, it frequently becomes necessary to begin a movement with only part of a measure; of this, in the following song, *The Lass of Patie's Mill*, this is sufficiently manifest.

Music.

As written.



As changed in accent.



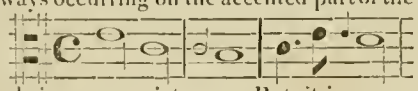
Syncopation. When a striking or breaking of time takes place in a bar it is called *syncopation*, but the term is more particularly used for connecting the last note of one bar with the first note of the following one, so that only one note is made of both of them. It is also used in the middle of a measure, likewise when a note of one part ends or terminates in the middle of a note of the other; this, however, is otherwise called *binding* or *ligature*. Syncopation is moreover used for a *driving note*, or when some shorter note at the beginning of a measure or half measure is followed by two, three, or more longer notes before any other occurs equal to that which occasioned the driving note to make the number even, as when an odd crotchet comes before two or three minims, or an odd quaver before two or more crotchets, &c.

Rests. *Rests* are pauses or intervals of time in a movement during which the voice or sound intermits or pauses. They are used occasionally in melody for the sake of variety or expression, but their great use is in harmony or compositions of several parts, in which pleasure is created by hearing one part move on while another pauses, and so on interchangeably. Rests are either for a bar, more than a bar, or only a part of a bar. When the rest is for a part of a bar it is expressed by a certain character corresponding to the quantity of time to be intermitted, as to a minim, crotchet, quaver, &c., and is accordingly called a minim, crotchet, or quaver rest, &c. and when these are used on a line or space, the part is silent for the duration of a minim, crotchet, or quaver respectively, or for such other quantity of time as may be marked. We subjoin the different characters of the several rests.

Sharps, flats, &c. In performance, in order to give due expression to the Music, great attention should be paid to the observance of these signs. The natural scale of Music, if limited to fixed sounds, and adjusted to an instrument, would render the instrument defective in many points and peculiarly, inasmuch as we should be able to proceed only by one particular order of degrees, and thence could not find any interval required from any given note upwards or downwards. So that a melody might be so contrived as that if it began on a certain note all the intervals might be truly found on the instrument, yet if it began on any other note the same melody could not proceed

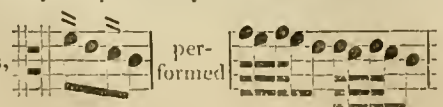
Music. because of the different proportions of the intervals. To remedy this defect, Musicians have had recourse to the following expedient, namely, to divide the octave into thirteen notes, inclusive of the extremes, that is to make the scale proceed by twelve degrees, by which means the instrument is rendered so perfect that there is little reason to complain. This system or scale for instruments whose sounds are fixed, is effected by inserting between the extremes of every tone of the natural scale a sound or note which divides it into two semitones. When we come hereafter to speak on temperament, it will be seen that the semitones are not an exact mean between the tones themselves, but in keyed instruments they may be considered as such for our present purpose. In order to preserve the diatonic series distinct, the notes inserted as above mentioned either take the name of the natural note next below, with this character ♯, called a *sharp*, or that of the natural note next above it, with this character ♭, called a *flat*. Thus, in the semitonic series of an organ or pianoforte, the same key will be indicated by D♯, or E♭, and thereon the white or lowermost range of keys represent the natural or diatonic notes, and the black, or those behind, the artificial ones, or flats and sharps. There is another character which belongs to this place; if a note has been elevated by a sharp, or depressed by a flat, the natural ♮ prefixed to it restores it to its original place in the scale, or if flats or sharps have been placed at the beginning of the staves or lines, or in spaces which affect all the notes placed on or between them, the natural contradicts them, as may be required. Besides these, two other characters are used, namely, the double sharp × and the double flat 𝄫, which prefixed to notes, raise or depress them respectively two semitones.

Graces. The chief graces used in melody consist of the *appoggiatura*, the *shake*, the *turn*, the *beat*, with the *mordente*, *beat*, *slide*, and *spring*, used especially by the Germans. The ornaments of harmony are the *arpeggio*, *tremando*, &c. The *appoggiatura* is a small note placed before a large one, from which it borrows half the duration, always occurring on the accented part of the measure thus,

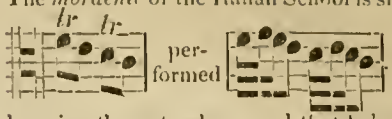


the small notes being appoggiaturas. But it is necessary to remark, that the appoggiatura, which in the example proceeds from the degree above that on which it leans, may equally come from the degree below, and that in the first way it has grace, in the second more of languor and affection. The appoggiatura is sometimes only a quarter of the note it precedes. The *shake* consists of a quick alternate beating of two notes in conjoint degrees, and is often marked with a single T, but more often *tr*, sometimes by a small *t* only; the shake begins with the highest note, and ends with the lowest, after a turn from the note below thus,

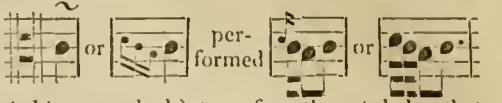
A series of continued shakes, ascending or descending, is called by the Italians *una catena di trilli*. The *passing shake* of Germany is expressed by the mark ≷ written over the note thus,



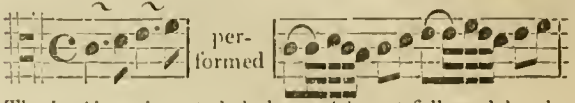
The *mordente* of the Italian School is similarly employed,



The *turn* is made by using the note above and that below in the following manner,

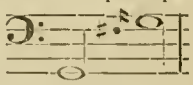


The *inverted turn*, marked ∽, turns from the note below that marked instead of above it. The *turn on dotted notes* is in very frequent use, and is written in the following manner,

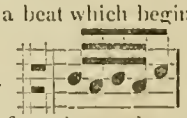


The *beat* is an inverted shake, and is not followed by the turn, as in the case of the shake. It is used generally from the semitone below, hence that note, if necessary, must be accidentally sharpened for the beat, thus written,

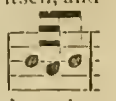
The *half beat* is rarely used, except in the bass, and almost instantaneously with the principal note then immediately quitted, as



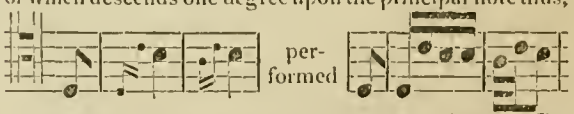
It is very similar to the *acciaccatura* of the Italians. The *German mordente* is a beat which begins with the note itself, and is long thus,



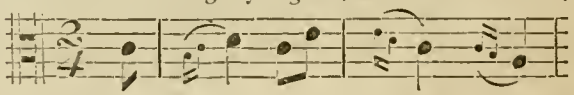
or short thus,



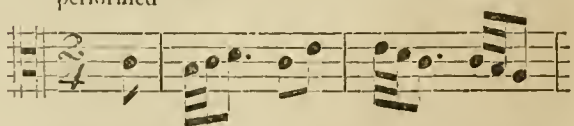
Its difference from the mordente above-mentioned, consists in its being made with the degree below. The Italians always use the degree above. The *German beat* is nothing more than a skip, consisting of two small notes, the latter of which descends one degree upon the principal note thus,



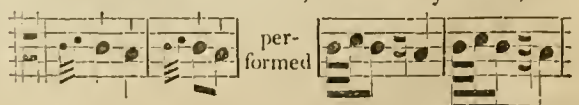
This grace has been called a *double appoggiatura*. The *slide*, which is a German grace, is composed of two small notes moving by degrees, and is thus written,



performed



The *German spring* consists of two small notes, somewhat similar to the Italian mordente, but extremely distinct, thus

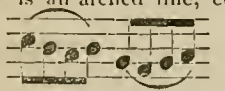
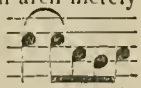
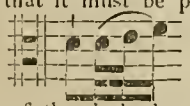
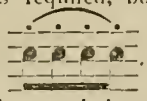
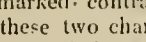
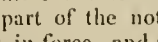
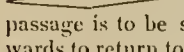
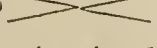


All the graces are subject to alteration by flats, sharps, or naturals, but the composer's duty is to mark them in that case as he wishes them to be executed. Under the

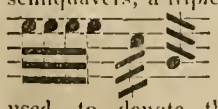
Music.

head of notation, it is proper to notice some of the graces which more properly belong to harmony than to melody; the principal of these are, the *tremolo*, which is a reiteration of some one note of the chord; the *tremando*, which is a general shake or trembling of the whole chord; and most particularly the *arpeggio*, which is effected in imitation of the harp by striking the individual notes of the chord upwards and downwards in very quick succession.

Other Musical characters.

It remains to notice a few not unimportant Musical characters, as respect the expression of Music. The first is the *pause*, 𝄐 which, placed over a note, signifies that the duration of its sound is to be prolonged beyond its regular length; and if placed over a rest, that the part is to be silent, and that the length of the rest is considerably extended. The *repeat*, 𝄋, which indicates the place to which the performer must return to repeat a passage, emphatically called in Italian *il segno*. The *direct*, ᴗ employed at the end of a staff to direct the performer's attention to the succeeding note on the line or space whereon it is always placed. The single and double bar have already been explained; it is only necessary to add here, that every measure, as we have seen, contains a certain number of notes, marked by single bars, and that every *strain* consists of a certain number of measures, which are terminated by double bars. The *slur* is an arched line, connecting a group of notes thus,  to signify that the group is to be played as smoothly and conjointly as possible. It differs from the *tye*, which is an arch merely uniting two notes on the same degree, thus,  The *dash* is a small vertical line placed over a note, to show that it must be performed shortly and distinctly, thus,  By some the *point* is used instead of the dash, but the former is chiefly used to distinguish notes from which an intermediate effect between the slur and the dash is required, but still uniting both, it is thus marked,  . The *crescendo*, or gradual increase of the sound, is marked thus,  . The *diminuendo*, or gradual decrease of sound from loud to soft, is marked contrariwise thus,  . The junction of these two characters  shows the first part of the note or passage is to be soft, then to swell in force, and afterwards to return to soft. The *rinforzando*  is the reverse of the preceding.

Abbreviations.

Abbreviations are used in Music for the sake of saving time to the copyist. Thus a line drawn over or under a semibreve, or through the tail of a minim or crotchet, divides it into quavers, a double stroke into semiquavers, a triple stroke into demisemiquavers, thus,  and the Italian word *segue* is often used, to denote that the notes following are to be performed as the preceding ones are marked. Another sort of abbreviation is that in which the tails of minims are connected like those of quavers, thus performed

Music.

There are other abbreviations which it is not necessary to enlarge upon in this place.

Melody

Melody.

Is the arrangement and disposition of different sounds in succession in a single part, and is produced by a single voice, or instrument, and is thereby distinguished from, though often in common speech confounded with harmony, which is the union of two or more consonant contemporaneous sounds successively. Though the term *melody* is generally applied to the air of a piece, yet it is to be recollected that the more melody is contrived in the other parts the better will be the composition. Melodies, as will be hereafter shown in respect of harmonies, are composed of the Musical or harmonical intervals, as the second, third, fourth, fifth, sixth, and octave; and as the octaves of each of these are but repetitions of the same sounds, whatever is said of all or any of these sounds the same may be said of their octaves. Melody is a progression therefore of sounds by skips or by degrees, or by a combination of both. Whether by skip or degree, the distance from the note last left is called an interval, and takes its name in proportion to its distance. De Momigny divides melody into two species, *univocal* and *polyvocal*. The former is that confined to a single note in each chord, the latter when it produces the effect of more than one voice. We have not space to insert his ingenious explanation, but must refer such of our readers as wish to pursue this branch of the subject to his Article *Mélodie*, in the *Encyc. Méthod.* 1818.

Intervals.

The names of the intervals show the number of degrees contained between the two sounds, the extremes being counted inclusively. They are simple and compound. The *simple interval* is without parts or divisions, and is contained within the octave, the *compound interval* consists of several lesser intervals. Those in the upper line in the following Table are simple intervals, the other three lines are compound, that is doubled, tripled, quadrupled, &c.

1	2	3	4	5	6	7	Simple
8	9	10	11	12	13	14	Double.
15	16	17	18	19	20	21	Triple.
22	23	24	25	26	27	28	Quadruple.
29, &c.							

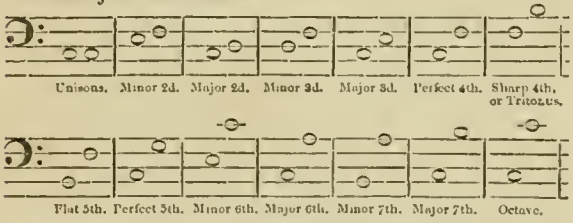
} Compound intervals.

In the above Table it will be seen, that the compound interval is but a repetition of a simple interval an octave above, thus the sixteenth is a reduplication of the second and the twenty-seventh of the sixth; or, in other words, a compound interval is such whose terms are in practice, either taken in immediate succession, or when the sound is made to rise and fall from the one to the other by touching some intermediate degrees, so that the whole is composed of all the intervals from one extreme to the other.

The fourteen diatonic intervals are *the unison*, which, though consisting of two sounds equal in degree of time, is still reckoned as an interval when considered in harmony. The *minor second*, sometimes denominated the *flat second*, is the interval formed by two sounds at the distance of a diatonic semitone, as from B to C, and E to F. It is also necessarily found in the other scales, as will hereafter be seen. The *major second*, consisting of a whole tone. The *minor third*, which contains a whole tone and a diatonic semitone. The *major third*

Music.

containing two whole tones. The *perfect fourth* composed of two tones and a diatonic semitone. The *sharp fourth* containing three whole tones, and thence called by the Ancients the *Tritonus*. The *flat fifth* contains two tones and two semitones, but not three whole tones, it may be rather said to consist of two minor thirds. The *perfect fifth*, which contains three tones and one semitone, or a major and minor third. The *minor sixth*, consisting of three tones and two semitones, also divisible into six semitones, and joined to a major third completing the octave. The *major sixth*, which contains four tones and one semitone, or nine semitones. The *minor seventh*, containing four tones and two semitones, divisible also into a fifth and minor third, or into ten semitones. The *major seventh*, called also the *sharp seventh*, composed of five tones and one semitone, also divisible into a fifth and major third, or into eleven semitones. Lastly, the *octave*, which is composed of eight degrees. The octave then consists of thirteen sounds, and, as it has only twelve intervals, it must therefore be recollected, that the fourteen diatonic intervals above described arise from counting the unison as one of them, and by the distinction between the sharp fourth and flat fifth, though upon keyed instruments the same key expresses them both. It will appear thence, as we have before mentioned, that the seven notes of the scale are capable of forming seven species of octaves according to the places of the natural semitones. We subjoin for more distinct comprehension a synopsis of the intervals just described:



Inversion.

Inversion is caused by placing the lower note of an interval an octave higher, or the converse, thus a second is converted into a seventh, a third into a sixth, a fourth into a fifth. By this process the major are converted into minor intervals, and the contrary. The sharp fourth is turned into a flat fifth, and the unison becomes an octave.

Major and minor modes.

In speaking of the Ecclesiastical tones, we have adverted to the authentic and plagal modes, and have explained that the authentic has its melody between the key note and its octave, whilst the plagal is confined between the fifth of the key, and its octave or twelfth. A consideration of this may have already led the reader to reflect upon the major and minor modes of Music now to be mentioned. It is usual to denominate the scale by the species of third which it carries, either major or minor; this, in truth, gives it the name of the major or minor mode; and Malcolm, very judiciously, to prevent confusion, and for greater exactness in the nomenclature, says, that an octave with its natural and essential degrees is a mode; but with respect to its place in the scale of Music, that is, its pitch of tune, it is a key, though that name be peculiarly applied to the fundamental. Whence it follows, that the same mode may be with different keys, that is, an octave of sounds may be raised in the same order and kind of degrees, which makes the same mode, and yet be begun higher or lower with respect to the whole, which will make different keys; and, on the contrary, that the same key may be with different modes, that is to say, that the extremes of two octaves may be in the same degree of tune, and the division of them be different.

Music.

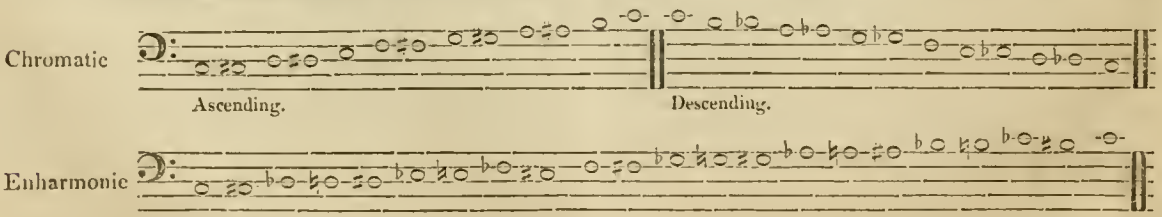
Consonances and dissonances.

Under the head of Melody we do not think consonant and dissonant intervals properly find place, they may be more fittingly considered under Harmony, to which the reader is referred. We shall here merely state, that what are called the consonant intervals as most agreeable to the ear, are the octave, fourth, fifth, the two thirds, and the two sixths, that seconds and sevenths are always considered dissonant, and that the fourth and fifth are only considered consonant when perfect.

Chromatic and Enharmonic Melodies.

Chromatic and enharmonic melody.

The preceding observations have been applicable to the melody arising from the use of a diatonic scale. We shall now consider the other scales. The chromatic scale has its etymology in the Greek word χρῶμα, *colour*, according to the authority of some, because the Greeks distinguished it by differently coloured characters; according to others because the chromatic genus was a mean between the diatonic and enharmonic genera as colour is a mean between black and white; but according to others, because this genus varies and embellishes the diatonic by its semitones, producing in Music the same species of variety that colours do in a Picture. As in the diatonic genus the tone is its characteristic, so in the chromatic the semitone is the distinguishing element. Thus a scale formed of semitones inserted between all the natural tones is called a chromatic scale, and the melodies used upon it are chromatic melodies. The enharmonic scale is formed by uniting the ascending with the descending scale of the chromatic genus, by the use of an interval created between the sharpened note of the preceding, and the flattened note of the succeeding one. It consequently contains intervals smaller than the semitone. These, though not exactly equal to half a semitone, are, from their approximation to that quantity, called Dieses, or Quarter Tones. These matters will be better understood by the inspection of the scales which we here therefore append.



In the enharmonic scale here we have inserted the intervals Fb and E♯, also Cb and B♯, but they do not properly belong to the scale as their distance is smaller than a quarter tone. Rightly to understand this, it

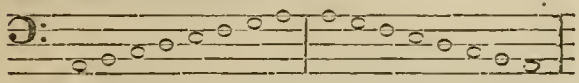
Music.

must be known that in the theory of harmonics, the interval of a tone throughout the diatonic scale is not equal in every part; for instance, the tone between the fourth and fifth is imaginably divided into nine parts, called commas, whereas that between the fifth and sixth of the major scale consists of only eight commas. So the diatonic semitone consists of five commas, and the chromatic semitone of three or four, according to the magnitude of the tone. There is an interval, also, called hyperoche, which by nice calculation is found to be a comma and a half.

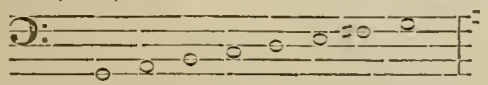
Scales or Keys.

Scales or keys.

It will now easily occur to the reader, that there may be many diatonic scales formed out of an octave of sounds, the notes in each bearing certain relations to some principal note from which they are derived, and on which they depend; this is called the *key note* or *tonic*. The guides to point out this key note will be the places which the semitones hold in the scale. In the diatonic scale it has been seen that these fall between E F and B C in the major mode. It has been noticed, that in the minor mode the two diatonic semitones are between the second and third, and between the fifth and sixth degrees. The only series of this kind among the natural notes is the key of A as under, and which may be taken as a specimen of all the minor scales.

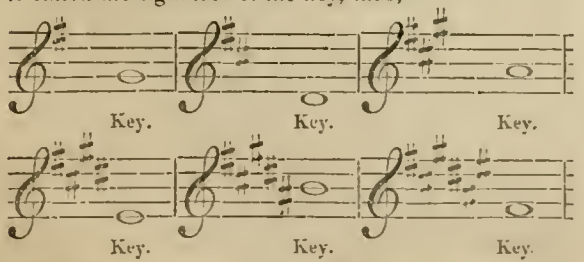


Now it is evident that in major modes, if we change the tonic or key note from the diatonic scale of E, and begin upon the G above, as a new tonic, or key note, in order to preserve the relative intervals of semitones in the scale it will be necessary to sharpen the seventh F, thus,

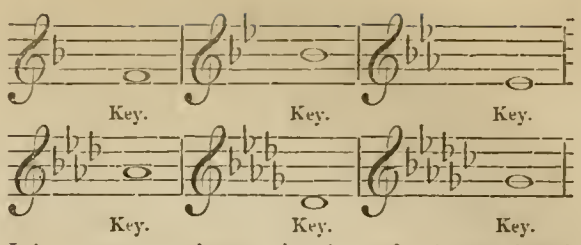


So if D be taken as the tonic or key note, we shall not only have to sharpen the F, but C then becomes the seventh, and that also must be sharpened, thus bringing two sharps, till having gone through the scale with the fresh creation of sharpened notes, we shall have arrived at the key of F sharp with six sharps. Instead of being marked as they occur, which in writing would be an inconvenient practice, it is usual to place them at the beginning of a staff immediately after the clef, and this is called the signature of the key, thus,

Signatures.



The same process takes place with keys bearing flats, where the introduction of a flat must be on the seventh of the original key, in order to preserve the regular proportions of the different intervals of the scale, and from this rule all the following signatures of flats are formed:



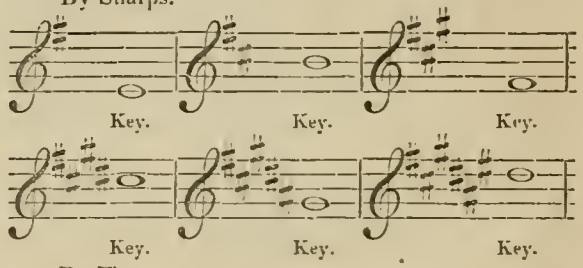
Music.

It is necessary to observe, that in performing on keyed instruments, such notes as E, the sixth flat in the last signature, B natural is used instead of it owing to the imperfection of dividing the instrument so with G♭, &c. &c.

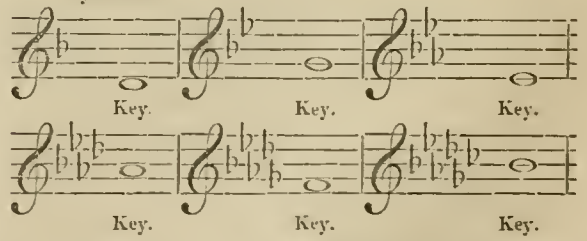
The scale of the minor mode, which differs as we have seen in the place of its semitones, varies also from it by the ascending and descending scales being different, for when the seventh of the scale ascends to the octave, or eighth, it must be sharp as the leading note to the tonic. This sharp is always, however, omitted in the signatures of the minor keys, but marked accidentally in the melody when required. But with this sharp seventh alone, a very harsh chromatic interval, called the extreme sharp second, occurs between F♯ and G♮ in the natural scale, and to avoid this the sixth also is made sharp, and thus the accidental scale of the minor has two notes altered from the signature, but in the descending scale the leading note being depressed to fall on the sixth the signature requires no accidentals.

The signatures of the minor modes are the same as those of the major proceeding either by sharps or flats, thus,

By Sharps.



By Flats.

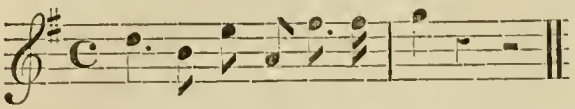


The major and minor scales bearing similar signatures are called relative, thus of the major key of D, the minor key of B is said to be its relative minor, in which case the tonic of the minor mode is found to be the sixth note ascending of the major scale bearing the signature, and these tonics will always be found one degree below the last sharp of the signature, and in signatures with flats always the third degree above the last flat.

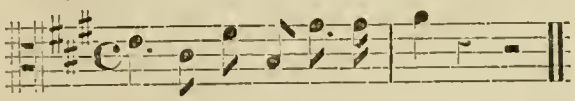
Transposition is the changing any melody into a key or clef different from that in which it was originally composed or stands written. There are two sorts of transposition, the first with regard to the clef, and the second with regard to the key. The first consists in changing the places of

Transposition.

Music. the notes among the lines and spaces, but so that every note be set to the same letter. It is effected by moving the same clef to another line, or by using another clef, but with a signature that places the tones and semitones in the same order as before. The last, or setting the Music in a different key, is the change of it to a different pitch or key note to that in which it is noted, so that the semitones of the two fourths which compose them may be found by means of flats or sharps, exactly in the same range or proportion to each other as before transposition. Thus,



Transposed a 7th lower.



Modulation. When a melody moves out of the key in which it commences, and the original scale is altered by new sharps or flats, the change is called *modulation*. Under this term is comprehended the regular progression of the several parts, through the sounds in the harmony of a particular key, as also the proceeding naturally from one key to another, this will be hereafter noticed under the following head Harmony. We will merely observe here, that each major scale is naturally connected with two others, which are called its attendant scales, one a fifth above it, which adds a sharp to the signature, the other a fifth below it, which adds a flat to the signature. So also every minor scale has its attendant scales.

Characteristic notes. There are certain names given to notes in the scale as peculiarly marking their character. It is not our intention to use them in the following pages, we however think it right that they should be known to and understood by the reader.

First, the *tonic*, or key note, which is the chief sound in a melody, and upon which, either in the chief melody or in the base, all melodies terminate. Its octaves, both above and below, take the same name.

Secondly, the *dominant*, which is a perfect fifth above the key note. This, from its intimate connection with the key note, and the necessity of that being heard after it at the perfect final cadence in the bass, is said to govern the key note, and thence takes its name of dominant.

Thirdly, the *subdominant*, or fifth below the key note, or the fourth above it in the ascending scale. It takes its name from its being also in some measure a governing note, inasmuch as the tonic requires to be heard after it in the plagal cadence.

Fourthly, the *leading note*, or sharp seventh, which the Germans call the subsemitone of the mode. It is always a major third above the dominant, and, consequently, as we have before observed, requires an accidental sharp or natural in the minor scale, when it occurs.

Fifthly, the *mediant*, which, as its name imports, is the middle note between the tonic and dominant in ascending, hence it varies as the scale is major or minor, in short, with its learned name, it is nothing more than a major or minor third.

Sixthly, the *submediant*, which, as its name also imports, is the middle note between the tonic and subdominant in the descending scale, or, in other words, the major sixth in the major scale, and in the minor scale is called the minor sixth. Music.

Seventhly, the *supertonic*, or second above the key note, so called by Dr. Callcott, in his excellent *Musical Grammar*, to which we acknowledge ourselves under very considerable obligations; he has so translated it from the French *sutonique*. The reader may very advantageously refer to this Grammar for some well-chosen examples of melodies in which these seven principal notes in the scale occur.

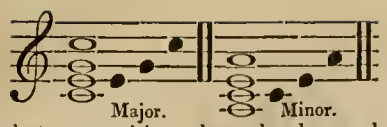
We here close our remarks on Melody by observing that in early Music the signatures of sharp keys are usually given with a sharp less than would indicate the key in which they are written; for instance, in the key of A, the third ♯ which occurs on G is generally inserted as an accidental; so in the flat keys, the signature of one flat will usually be found to indicate the key of B♭ major or G minor. The key of E♭ major has rarely a signature of more than two flats, the accidentals then being always marked.

Harmony

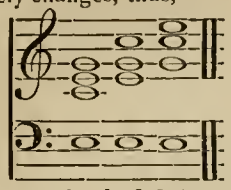
Definitions. Consists in the contemporaneous production of two or more sounds conformable to certain rules of Art. To understand this branch of the subject the reader must refer back to a former page, (722,) in which all the different intervals occurring in the scale have been placed before him, as without the clearest understanding and recollection of those intervals his comprehension of what is now to follow will be hopeless. A *concord* is the relation of two sounds which is agreeable to the ear; if they are in such relation, with such a difference in pitch that being sounded together the mixture affects the ear with pleasure, that relation is called concord. Those sounds which make an agreeable compound in consonance, will also be pleasing in succession. Concord is included in the term Harmony, but it is more properly applied to the agreeable effect of *two* sounds in consonance, whereas Harmony expresses the agreement of a greater number of sounds than two. A *discord* is the relation of two sounds which are always of themselves disagreeable, whether applied in succession or consonance. If two sounds are in such a relation of tune or pitch as that being contemporaneously sounded they make a mixture disagreeable to the ear, that is a discord, in contradistinction to the two agreeable sounds, which are called a concord. As concords are denominated harmonical intervals, so may discords be termed unharmonical intervals. The Harmony of discords is that wherein the discords are used as the solid and substantial part of the Harmony. By the due interposition of a discord, the succeeding concords receive an additional lustre from the contrast. They are always, as will hereafter be shown, introduced into Harmony with due preparation, and must be succeeded by concords, which are the resolution of discords.

Common chord. If to any sound its major or minor third and its perfect fifth be added, the arrangement is called a *common chord*, in which it is necessary to express the minor third, if that be used, otherwise it is usually taken to be the common chord with the major third, to which, if the octave to the sound be added, we have a combination of four sounds in the harmony, thus,

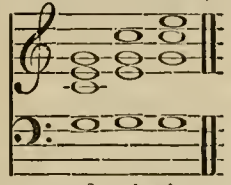
Music.



Now in whatever positions these chords are placed, provided the C or A remain the lowest notes, the chord still bears the name of the common chord of C and A respectively. The other notes remaining the same, if the position of the lowest note be altered, the name of the chord immediately changes, thus,



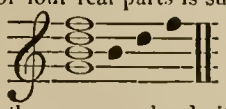
If E of the common chord of C be used as the lowest or bass note, the chord is then called a sixth, because the key note is then a sixth interval from the bass note, and that sixth, it will be seen, has above it for its accompaniment a minor third from E to G. Now, if G be used as the lowest note of the chord, thus,



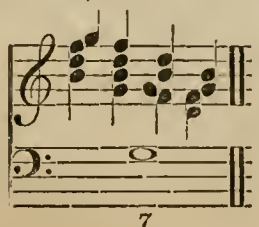
we have the key note a fourth above the bass, and the chord is that called the fourth, and is accompanied, as will be seen, by the sixth. These two chords, then, the sixth and the fourth, are inversions of the common chord, and have the same note C as their expressed or understood bass, which is the *fundamental bass*, or that on which they are constructed. The same arrangement will also hold in respect of common chords with minor thirds. The first or common chord is expressed shortly by figures placed below the notes in the bass $\begin{matrix}3&5&8\\5&8&\text{or}\ 3\end{matrix}$, but to the common chord these are often omitted. The second, or chord of the sixth, is merely figured with a 6, and the third, or chord of the fourth, is denoted by the figures $\frac{6}{4}$.

iscords. inor venth.

The most simple of the discords is called the minor seventh, or by some the dominant seventh; the latter of which appellations is given to it because it only occurs on the fifth or dominant of the key, and requires the part on which it is heard always to descend one degree. Its full accompaniment of four real parts is subjoined.



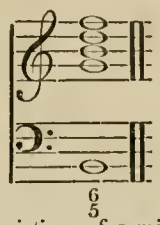
As in the case of the common chord, either of these four notes may be the bass or bottom note of the chord; yet, as with C in the common chord we have just left, the fundamental bass note of it will be G, B will be the third, D a perfect fifth, and F a minor seventh; thus



Music.

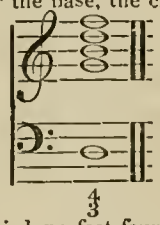
and in each case it would bear the figure 7, or mark of the seventh placed below it in the example. It is sometimes also figured $\begin{matrix}3&7&5&3\\5&5&3&7\\7&3&7&5\\8\end{matrix}$, these positions containing the tenth, twelfth, and fourteenth of the root when the octave is subtracted.

If B be now substituted as the bass note, a chord is obtained,



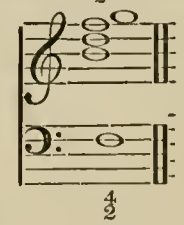
by the inversion consisting of a minor third, an imperfect (flat or false) fifth, and a minor sixth, and this is figured, as in the example, $\frac{6}{5}$.

If D be taken for the base, the chord becomes



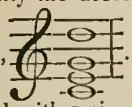
one of the minor third, perfect fourth, and major sixth, and it is figured $\frac{4}{3}$, as in the example.

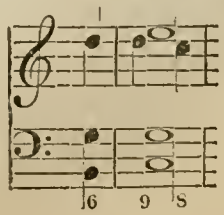
If F be used for the bass, it is then changed into a chord, consisting of a major second, sharp fourth, and major sixth, and is figured $\frac{4}{2}$, thus,



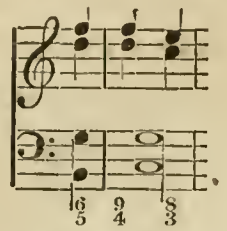
Hence the three last chords being the offspring of the seventh, are, with propriety, termed derivatives of the minor seventh, when accompanied by a major third and perfect fifth. By some persons the three last chords are called a syncopated fifth, a syncopated third, and a syncopated second respectively.

The ninth.

Hitherto we have confined ourselves to the consideration of chords within the compass of the octave, we now proceed to the discord called the ninth, which has generally the accompaniment of a third and fifth with it, thus,  . To a composition in four parts, marked with a single 9, it is accompanied by the third and fifth, thus,



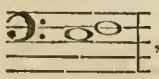
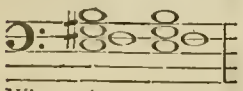
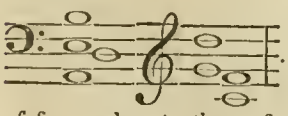
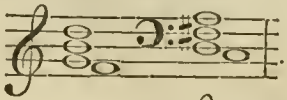
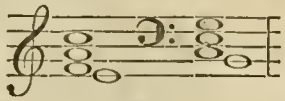
Music. It is, however, often accompanied by a fourth and fifth, in which case it is marked with a double row of figures, thus,

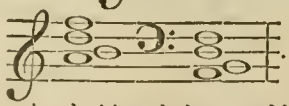
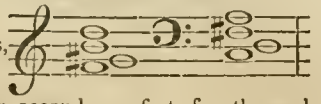


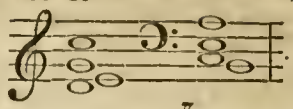
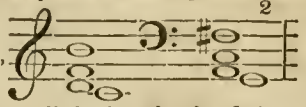
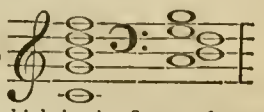
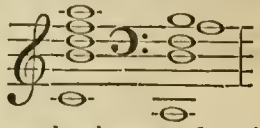
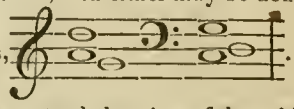
In three parts the fifth is omitted. The ninth, accompanied with the third and fifth, is, in truth, an appoggiatura continued in the place of the eighth. The chord of the ninth has two inversions, one of them figured with a seventh, the other figured with a fifth and sixth, the first on the third of the fundamental note, and the latter on the fifth of the fundamental note.

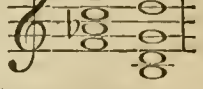
To the figures 4 and 6 are frequently added a dash, thus, 4, 6, which denotes them to be respectively a sharp fourth and a sharp sixth.

List of chords. The above being the foundation of all knowledge of the different concords and discords employed in harmony, we shall proceed to enumerate the whole of the latter as they occur, from the second upwards, observing that they will, except those not direct, be found inversions of the seventh sharpened or flattened with major or minor thirds.

The second is marked with a 2, and written thus,  , in which it is to be observed, that the lowest note is the discord. The chord marked $\frac{5}{3}_{2}$ consists of four real parts, that is to say, it contains four real sounds without octaves or unisons: it is written thus,  ; its use is to retard the $\frac{6}{4}_{3}$ or $\frac{6}{5}$. When the third of this chord is sharpened, it indicates the minor mode. The chord $\frac{5}{4}_{2}$ is thus written,  . The chord of $\frac{6}{4}_{2}$ is one of four real parts, three of which form a common chord above the bass, the note whereof is the discord; it is written thus,  . The chord of $\frac{6}{4}_{b2}$ is expressed as follows, 

That of the $\frac{6}{4}_{2}$ thus,  . It is the imperfect common chord with a whole tone added below it. The $\frac{6}{4}_{\sharp 2}$ is written thus, 

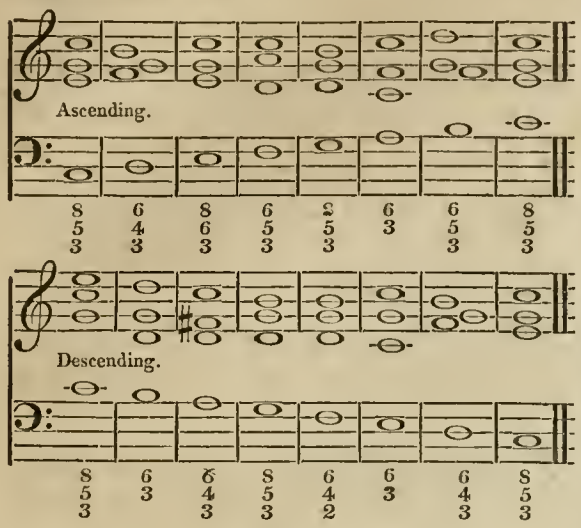
The chord of the major second, perfect fourth, and minor seventh, which is used to retard the common chord by an appoggiatura in the bass, is marked $\frac{7}{4}_{2}$, and written  . The chord of the sharp seventh is figured $\frac{7}{4}_{2}$, and expressed in notes thus,  . The following is by some called the chord of the eleventh, whereof the figure 4 is the representation, by others called the sharp seventh, but we consider the former the right name, $\frac{7}{5}_{4}{}_{2}$, and thus written,  . The chord of the thirteenth, which in the figures is represented by a sixth, and may be either major or minor, is thus figured, $\frac{7}{6}_{4}{}_{2}$, and thus written,  . In the chord of $\frac{5}{2}$ the fifth must be always perfect, the second either major or minor, and either may be doubled; it is written as follows,  .

The above is as extended a view of the subject of *thorough* or *continued bass* (*basso continuo*) as our limits allow. From what has been shown at the commencement of this head, it will be collected that there are two species of bass, one imaginary, called the fundamental bass, to which all chords may be reduced by bringing them to the form of the perfect chord, or to that of the seventh; and the other the thorough, or continued, or figured bass, in which the real ground note of the chord is found by the aid of the figures, or by simple or continued inversion to reduce them to their elements. We have abstained, in this place, from all observation on the preparation and resolution of discords, because we have thought they better belonged to another branch of this Essay, where the reader will find sufficient to guide him in their use. Perhaps, however, we ought, in this place, to explain that *chords* are called *irrelative*, wherein a sound common to both does not occur in each, thus,  in which it will be perceived there is no note common to both; *relative* when the converse is true. And it may be here shortly observed, that a recollection of this fact will lead a young extempore player to results which will surprise him. He may, for instance, proceed from any chord to another, in which one of the sounds remains that has been employed in the chord previously struck: if discords occur, they must, of course, be prepared and resolved as hereafter shown; but on this he may rely, that one chord will not inharmoniously follow another, if only one of the notes in the preceding be preserved in the following chord, avoiding at the same time progressions of fifths and octaves between the extreme parts in similar progression, that is, moving both the same way. We ought also to notice here, as the more

Music.

Relative and irrelative chords.

Music. proper place, that there is a progression of sounds called the harmony of the scale, which attends the ascent and descent of an octave, the general method of accompanying which is as follows:

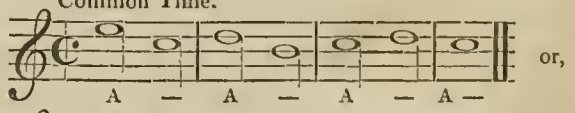


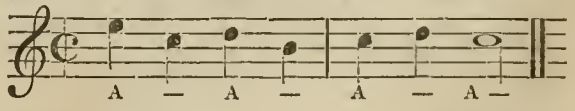
Rhythm.

inition. In modern Music, Rhythm is the accommodation of the long and short notes to the syllables employed in the words, so that both the one and the other may be properly separated, and so perceptible to the ear, that what is sung may be distinctly understood. This is effected by disposing the melody or harmony, or even both, in respect of time or measure, so as to suit the words; or if the Music be instrumental, the expression only of the sentiment. The usual application of the term has been to denote the time or duration of many sounds heard in succession, whether such sounds be Musical, and produced by voices and instruments, or without a determinate tone, as the strokes of a hammer on an anvil, the beating a drum, the articulations of the human voice in common speech, in repeating poetry, or pronouncing an oration. In this place that species only is to be considered which concerns the regulation of melody; and there is great truth in the Greek saying, *Το παν παρα μουσικοις ὁ ῥυθμος*, even in application to modern Music. With the greatest and sincerest respect for the memory of Dr. Burney, and equally as much for an ingenious, learned, and most elegant composer, Dr. Callcott, whose Works have often soothed the cares of life in our earlier years, and still command our admiration, we must nevertheless consider their admission of what is called the Musical foot and Musical cæsura as included under the first division, *Accent* of Rhythm. It is doubtless true, that notes in groups may by their relative proportions of length to each other be made to correspond with iambi, spondees, trochees, pyrrhics, dactyls, anapæsts, and as many other poetical feet as were ever numbered. But we consider it more true, if truth can have comparison, that nine-tenths of the greatest Musicians the World ever saw, knew not even the names of the disyllabic or trisyllabic feet, a small portion only whereof we have enumerated; and if the authors above mentioned had not appeared to sanction such a principle, we should, notwithstanding the Germans, have used some other epithet than useless in characterising it. Indeed, Burney, in page 77 of his Ist volume, almost seems to think as we do, where he says, that "modern Music, by its division into equal bars, and its equal subdivision of these bars by notes of various lengths, unites to the pleasure which the ear is, by nature, formed to receive from a regular and even measure, all the variety and expression which the Ancients seemed to have aimed at by sudden and convulsive changes of time, and a continual conflict of jarring and irreconcilable rhythms." Our notion is, that Accent is the principal subdivision of Rhythm; secondly, the Phrase; and thirdly, the Section and Period. Such is the mode in which we intend to shape our consideration of this part of the subject. Music.

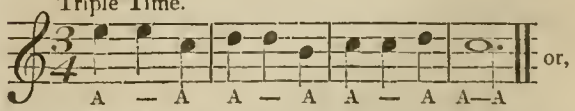
Accent is the particular stress or emphasis laid on a certain part or parts of each bar according to the subdivision of the semibreve, minim, or other unit of comparison in the time marked at the beginning of the staff. We have before mentioned this subject incidentally as connected with notation, and we shall in the succeeding Part, as connected with composition, have to recur to it. Here we shall investigate, as far as our limits justify, the mode in which it is employed. Each bar or measure is divided into accented and unaccented parts, the former are the principal. In common time, the beginning and the middle, or the beginning of the first half of the bar and the beginning of the latter half are always the accented parts of the measure. In triple time, they are found in the beignning or first of three notes. So again in common time, the first and third crotchet of the bar are on the accented part of the measure. In triple time, where the notes go by threes, that which is in the middle of every three is unaccented, the first and last accented, but the accent of the first is so much stronger, that in many cases the last is performed as if it had no Accent. This great and predominant Accent and the want of it are accompanied by what is called the *thesis*, or depression of the hand, and *arsis*, or elevation of it, respectively. To give examples of what is meant, we subjoin the following, in which the accented parts are marked with an A, and the unaccented parts scored under. Accent.

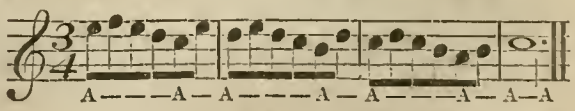
Common Time.





Triple Time.

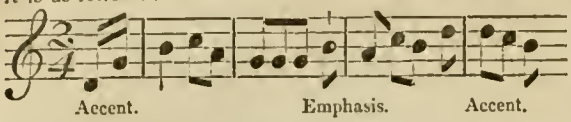




In the division of the bars or measures into groups of quavers, semiquavers, &c. though there be inferior accents to them, as well in common as in triple time, still the predominant accent of the measure is preserved, and must ultimately be referred to the primary division.

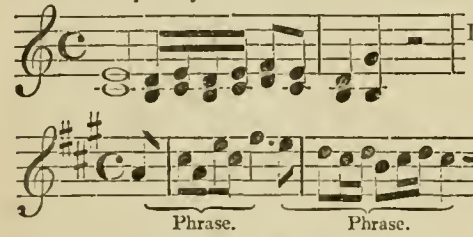
Emphasis is often obtained by deviating from the Emphasis.

Music. regular accent of the bar or measure, when the composer wishes to mark the weak part of it with more importance than the usually accented part. An admirable example of this has been selected by Dr. Callcott, in his *Musical Grammar*, from No. 3, Haydn's Symphonies: it is as follows:



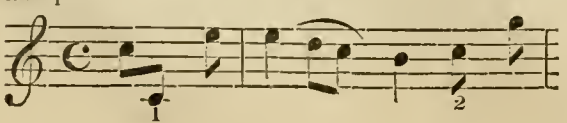
in which it will be observed, that in the first two bars the quavers are grouped according to the Accent, in the third contrary to the Accent, but according to the Emphasis required, and in the fourth the Accent is resumed. The same excellent authority says, that "in performing on the piano-forte a great difference seems to exist between them," (Accent and Emphasis,) "since Accent always requires *pressure* immediately after the note is struck, and Emphasis requires *force* at the very time of striking the note. Thus Accent may be used in the most piano passages, but Emphasis always supposes a certain degree of forte."

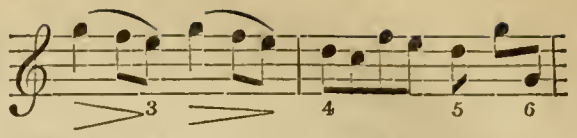
Phrase. An arrangement of notes either in melody or harmony, forming a passage more or less complete as its termination in cadence happens, is called a Musical Phrase; it generally consists of two bars, though in the older Writers it is frequently contained within one bar, thus,



There are two sorts of Musical Phrases. In melody, the Phrase is formed by the air, that is to say, by a sequence of sounds so disposed that they form one whole, ultimately leading to their close upon some essential part of the mode in which they are written. In harmony, the Phrase is a sequence of chords connected by dissonances or discords, either imaginary or expressed, and closing with an absolute cadence, according to the usual manner in which such cadence is formed. And as the passage is more or less finished, the close is more or less perfect. Rousseau has, *C'est dans l'invention des Phrases Musicales, dans leurs proportions, dans leur entrelacement, que consistent les véritables beautés de la Musique. Un compositeur qui ponctue et phrase bien, est un homme d'esprit: un chanteur qui sait marquer bien ses Phrases et leur accent, est un homme de goût; mais celui qui ne sait voir et rendre que les notes, les tons, les temps, les intervalles, sans entrer dans le sens des Phrases, quelque sûr, quelqu'exact d'ailleurs qu'il puisse être, n'est qu'un croque-sol.*

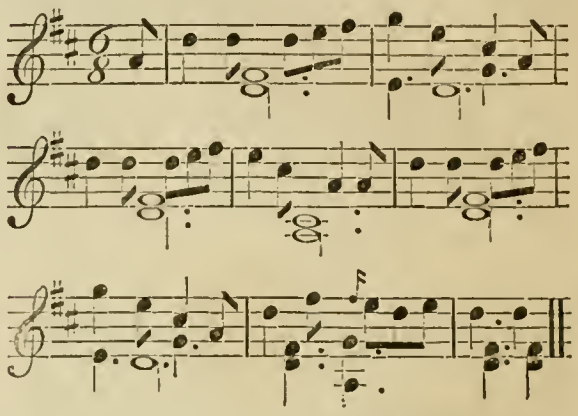
Punctuation. There is in Music, as in writing, a species of punctuation or repose, which, though not marked between the Phrases whereof a strain or sentence consists, will be easily seen and understood by reference to the following example:





Music.

The principal Phrase of which the above example is composed comprises six smaller parts, more or less important or extended, each forming a stop according to the place they occupy in the period of the melody. The first and sixth of these small Phrases are equal in number of notes, each containing only two; the second is longer; the third and fourth nearly of a length; the fifth brings it to a cadence; but the division of Phrases with stops or imaginary punctuation in a melodic period will easily appear by attention to the following melody from the *Don Juan* of Mozart.



In the above it will be seen, that there are two cardinal points, towards which the whole of this Musical sentence tends, namely, the perfect chord of the tonic or key note, and that of its dominant or fifth. We regret that we cannot longer dwell on this head, which the reader who wishes to become a master will find more amply set forth under the article *Ponctuation*, in the *Encyc. Méthod.* Article Musique, which article we have used very freely in some parts of this Essay. These stops or points are called by Dr. Callcott, as by the Germans, Cæsuras, from their analogy to the Cæsuræ in the feet of verses.

Section. The Germans have distinguished a passage consisting of two regular Phrases, the last ending with a cadence, by the name of a Section, two or more of which constitute a Period. A Section is not, however, always divided by Phrases, especially in the legato style of Music. There are Sections in different styles which do not occupy the time of two bars, as there are those which extend over a greater number than two bars or measures; so again in fugue, as well as other Music, the Sections are sometimes so interwoven that practice and experience can alone give the reader a thorough knowledge on the subject. Where two subjects are used in the parts, also in fugues, at the end where the Sections are necessarily interwoven, it is the practice to protract the harmonies so that the measures shall come out regular in the close. So also in vocal Music, the harmony of a Section is frequently protracted for the sake of well expressing the words.

Period. The Period, as we have already observed, consists of one or more Sections; it may be said to resemble the full stop or semicolon in punctuation of writing. When one or more Periods are terminated by the double bar, the whole

Music. is called a *Strain*. Those Periods which close with a perfect cadence are, from their last harmony, called *Tonic Periods*, and those terminating with an imperfect cadence are called *Dominant Periods;* but these terms are to be understood as relative to the nature of the cadence only, and not the modulation of the period. The Period, as well as the Section, is interwoven, especially in the fugue Music of the ancient masters.

Music. In many movements, the concluding passage, when it occurs after a protracted perfect cadence, is termed a *coda*. In modern Music, the Coda is often preceded by a lengthened shake on a note of the dominant harmony. A Coda varies in length; in some compositions it is extended to several sections, whilst in others it is confined to a single phrase. Coda.

PART III.

Composition.

Composition is the art of disposing and arranging Musical sounds into airs, songs, &c. in one or more parts, for voices or instruments, or both. Zarlino describes it as the art of joining and combining concords and discords, which we think rather too circumscribed a view of it, inasmuch as it certainly comprehends the rules, first, of Melody, or the art of writing a single part, that is of contriving and disposing simple sounds, so that their succession may be agreeable to the ear; and, secondly, the art of arranging and concerting several single parts in such a manner as to make one agreeable whole. Of Melody and Harmony we have already treated separately. Here we may stop to remark, that Melody is chiefly the work of the imagination, and therefore the rules of its composition seem only to bound it within certain limits, beyond which the imagination, in seeking after variety, novelty, and beauty, must not wander. But Harmony is the result of judgment, its rules are certain and extensive, and difficult in practice. It must, nevertheless, be remembered that Melody requires a knowledge of Harmony, and though a person unskilled in Music might accidentally hit upon a good air or melody, yet it is from a person of sound judgment that such a production is to be expected most correctly.

lotions. The motion from one note to another in the same part is either *by degrees* or *by skips;* thus, if the interval of a semitone major, or a whole tone be between two notes, the motion is by degree; but if from one a third or more above or below that from which we set out, it is by skip.

Motions considered between two parts, are of three kinds; the first is *oblique motion*, which takes place when one part repeats or holds on the same note, whilst the other moves up or down. The second is termed *direct* or *similar motion*, and is when both parts move the same way, be it upwards or downwards. The third is called *contrary motion*, and is that wherein one part moves downwards whilst the other moves upwards.

lain coun- rpoint. Premising this, and that the reader has well fixed in his mind the component parts of all the chords and intervals which have been given in the preceding Part, we proceed to as concise a view as possible of the principles of Composition. The tonic or key note, the fifth, the fourth, and the octave, in all keys, as well major as minor, take their common chords as their accompaniment, the dominant or fifth of the minor keys excepted, which has a major sixth for its accompaniment. The other consonant notes of the octave, namely, the third and sixth, and also the dissonant notes of the key require the uncommon chords for their harmony, namely, the third, sixth, and eighth, except the sevenths of minor keys, which bear the fifth instead. All melodies have the perfect chords of the key they are in for the fundamental basses, and it must be observed, that those melodies are most agreeable that move by conjoint degrees after them, those that proceed by the smallest skips. Formerly, excepting the leap to the octave, none greater than that of the sixth minor was allowed. The leaps of the false relations, [*viz.* a tritonus and a false fifth, were forbidden altogether. Those melodies being least agreeable that go most by leaps, and least by degrees, and the fundamental bass being only used, creating many leaps in its melody, to remedy the defect other notes are used for basses which have obtained the name of supposed basses. These are necessary on many occasions, for, inasmuch as they do not change the harmony, they make the melodies susceptible of great variety; for, using the fundamental and supposed basses as occasion may require, we are enabled to make the parts move together more by conjoint degrees, by which the melodies will sing better. In order to prevent prolixity, we shall, in the succeeding rules, use the key of C as an example of a major key, as we shall that of A for minor keys.

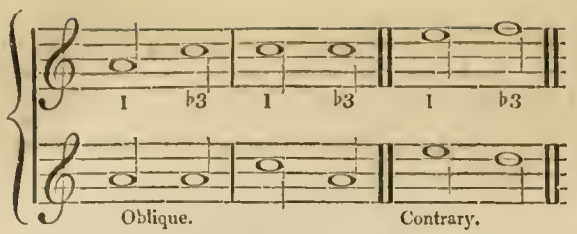
It is customary for every composition to begin with one of the perfect concords of its key note or tonic, *viz.* the octave or the fifth, and it must end in the key note with its common chord for the harmony; it should not begin or end with a sixth, though it occasionally may with a third. General rules.

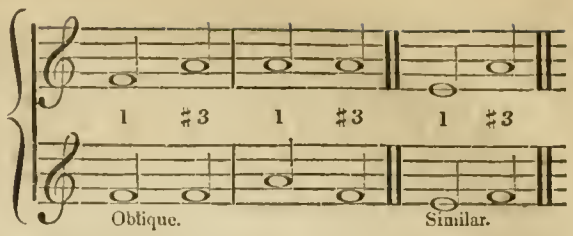
Two perfect concords of the same kind must not follow each other immediately as two unisons, octaves, or fifths, or fourths. This rule does not, however, obtain in the repetition of the *same* notes, this, in effect, being no more than the subdivision of a long note.

Two or more parts should not be so constructed as to move by leaps together, but should proceed as much as possible by contrary motion and single degrees, because, by this means, there will be less danger of falling upon consecutive concords, independent of the melodies being thus rendered more agreeable and better suited to the voice. The rules for the succession of concords will be now submitted to the reader under their different classes, observing always, that it is incorrect to go by similar motion from one perfect concord to another of any kind.

If both the parts move, it is better to proceed from the unison to the third minor than to the major; to the first you must go either by oblique or contrary motion, to the latter by oblique or similar motion, but the first is preferable. Thus, From the unison.

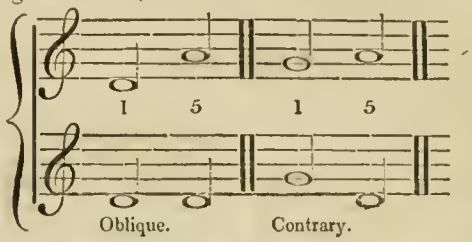
Music.



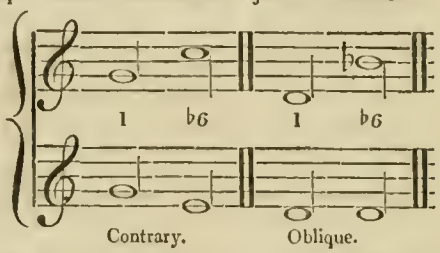


Music.

A fifth is to be avoided after a unison by similar motion though good in oblique motion; and allowed in contrary motion if one part move a single degree. Thus,



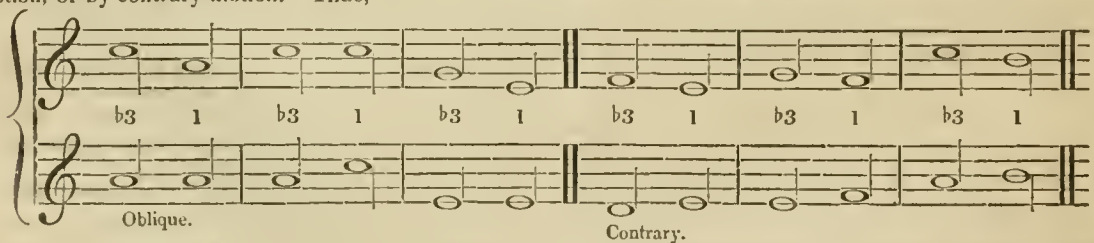
From the unison to the sixth minor may be taken by contrary motion, but it is not considered good by the other motions, because the great leap from it to the sixth major is forbidden.



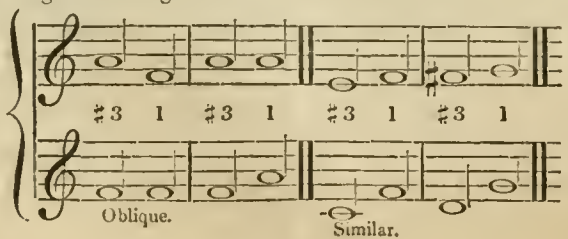
An octave should be avoided after the unison except by oblique motion, inasmuch as it is, in truth, the subdivision of two notes.

From thirds.

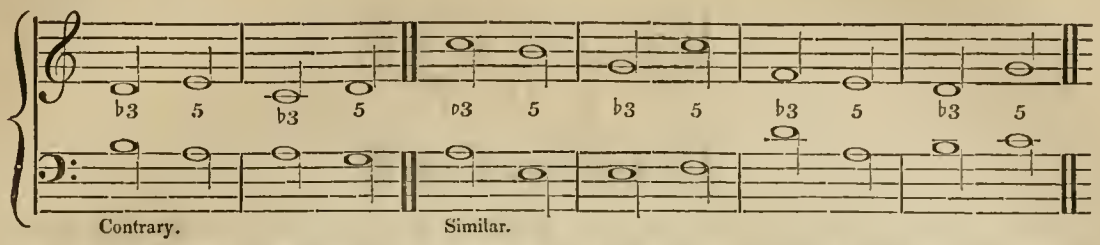
Major and minor thirds, though imperfect concords, are more frequently used than any other. Their effect, either ascending or descending, is agreeable. Major thirds are cheerful in ascending, and the contrary in descent, in the minor a contrary effect is perceptible. In divisions by *supposition*, that is, the use of two successive notes of equal time, one of which, being a discord, *supposes* the other a concord, thirds may follow each other to any extent, but two minor follow each other better than two major thirds. Commencing with the third major is best in ascending, and the converse in descending, changing the quality alternately. From a third we may go to any concord, and from any other concord to a third, but in going from the third to a perfect concord, it is advisable, if possible, to go to the nearest. When the composition consists of many parts, thirds, or their replicates, are most efficient in parts remote from the bass. From the third minor to the unison the better mode is by oblique motion, or by contrary motion. Thus,



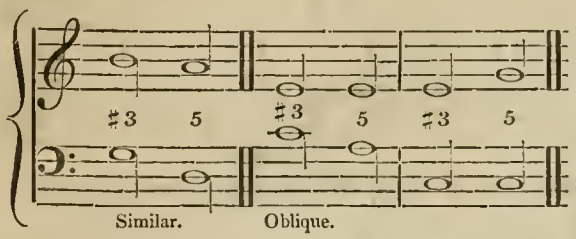
From the major third to the unison is allowed by oblique motion, though better by similar motion, one part ascending a single degree. And, in proceeding from a third to a fifth by contrary motion, it is better to go from the third minor because the danger of falling on the tritonus is avoided.



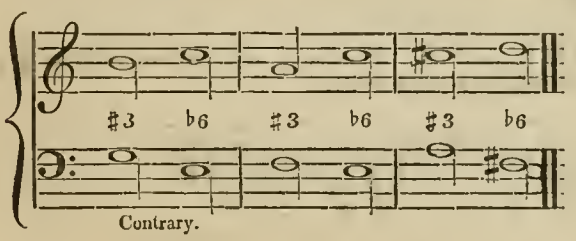
Music. From the minor third to the fifth is better by contrary motion, though also good by similar motion, if one part move a degree. Thus, Music.



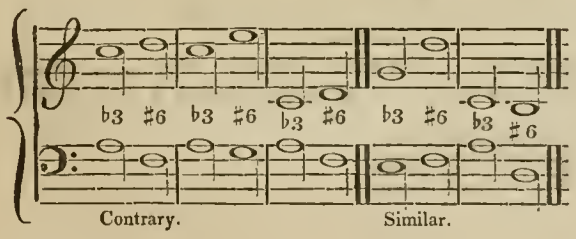
From the major third to the fifth, the progression is better by similar descending motion one of the parts moving a single degree, it is also good by oblique motion. Thus,



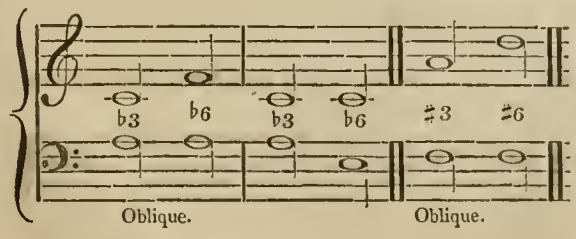
From the major third to the minor sixth, and from the third minor to the sixth major, it is better to go either by contrary or similar motion. In oblique motion the thirds and sixths must be either both minor or both major. Thus,



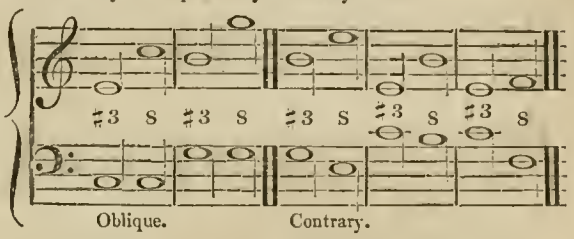
and thus,



and thus,

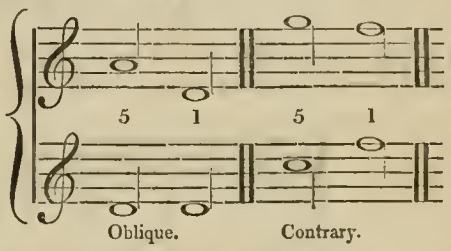


An octave after a third major is good by oblique motion, as also by contrary motion, and it is better when one part moves a single degree. After the third minor an octave is scarcely allowed, and when used should only take place by contrary motion.

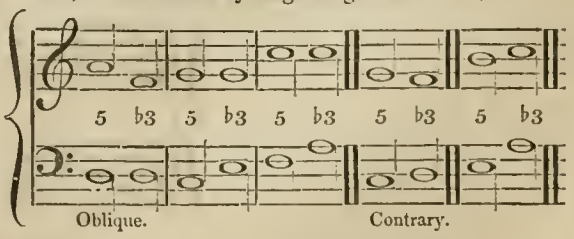


After the unison or octave the fifth is the most perfect of the concords. It is best in parts nearest the bass. We may proceed from it by oblique motion to any other concord From fifths.

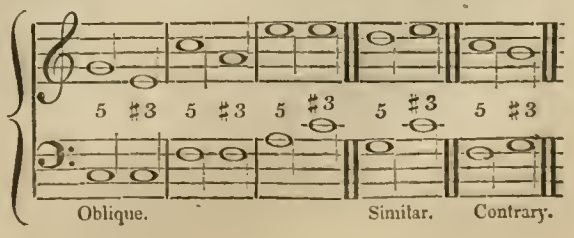
From the fifth to the unison by oblique motion is good, as also by contrary motion, one part moving a single degree, but by similar motion it is bad.



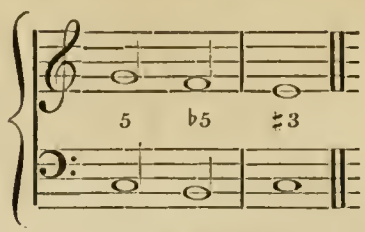
From the fifth by any of the motions you may proceed to either third, but by oblique motion it is best. The next preferable mode of going to the third minor is by contrary motion, and to the third major by similar motion, both of them by single degrees. Thus,



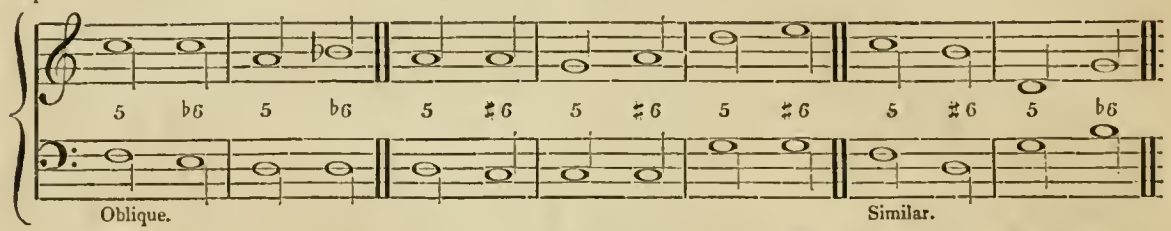
and thus,



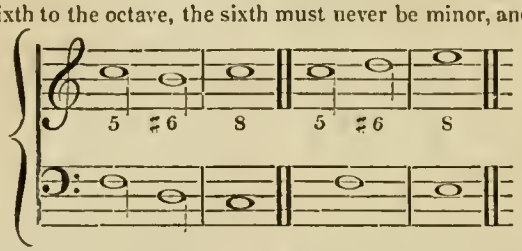
Music. A perfect fifth may be followed by the false fifth if the latter be immediately succeeded by the third major, and that by contrary motion. Music.



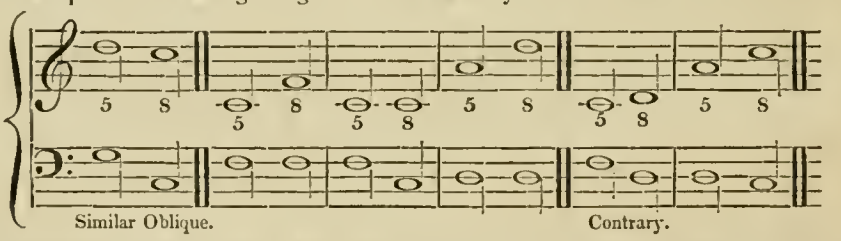
From the fifth to either of the sixths it is better to proceed by oblique motion, though it is allowable by similar motion if one of the parts moves a single degree. It is also allowable ascending, but not in descending, to leap from the fifth to the sixth minor, though not to the major.



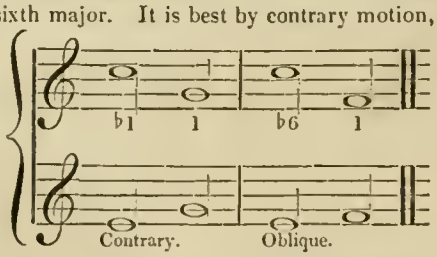
From the fifth through a sixth to the octave, the sixth must never be minor, and the motion must be contrary.



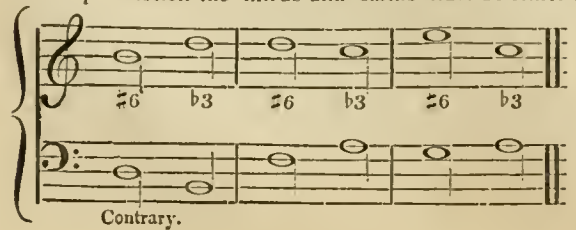
An octave after the fifth in leap by similar motion is to be avoided. By oblique and contrary motion it is good, and if one of the parts move a single degree it is allowable by similar motion.

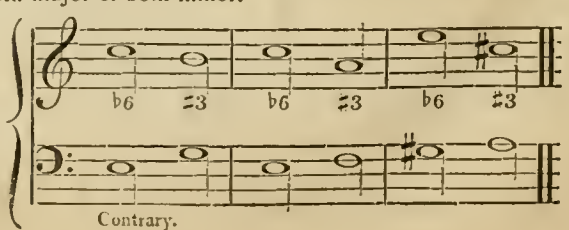


From sixths. The sixth major naturally moves to the octave. The sixth minor to the fifth. From the sixth minor we may go to the unison but not from the sixth major. It is best by contrary motion, by oblique motion it is not allowed.

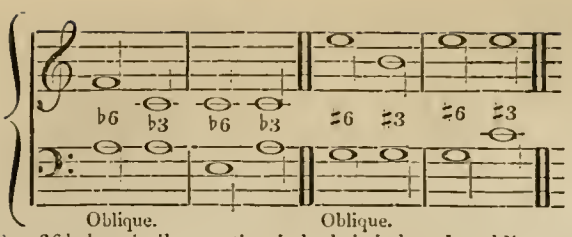


A third minor after a sixth major, and a third major after a sixth minor, are best in contrary or similar motion. In oblique motion the thirds and sixths must be either both major or both minor.

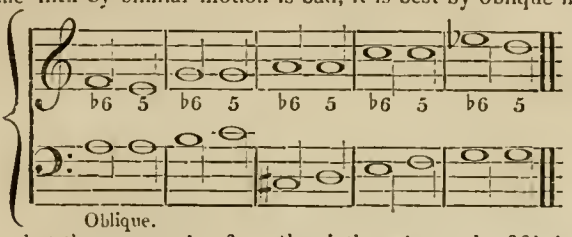




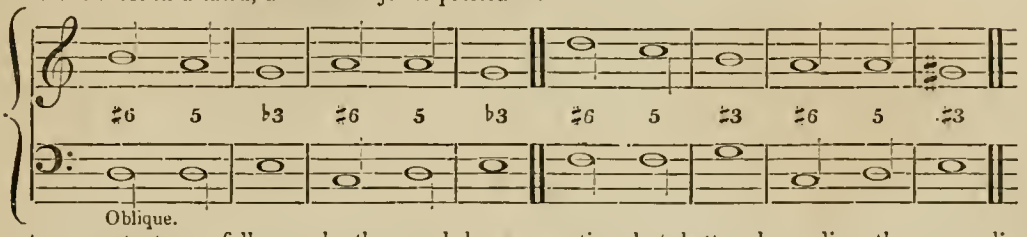
Music.



From the sixth minor to the fifth by similar motion is bad, it is best by oblique motion.

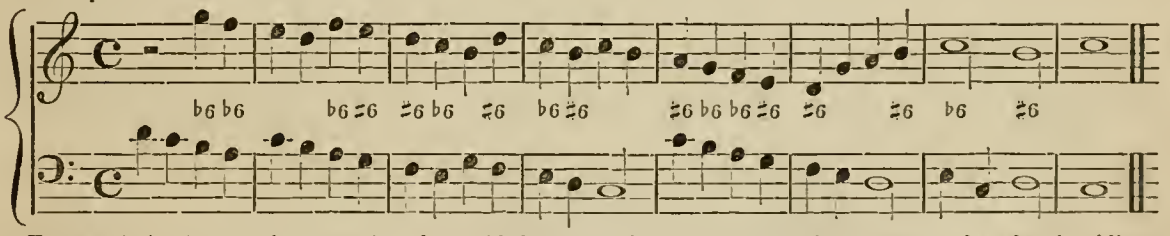


It is only in oblique motion that the progression from the sixth major to the fifth is allowed, and then the parts must afterwards meet in a third, and the major is preferable.

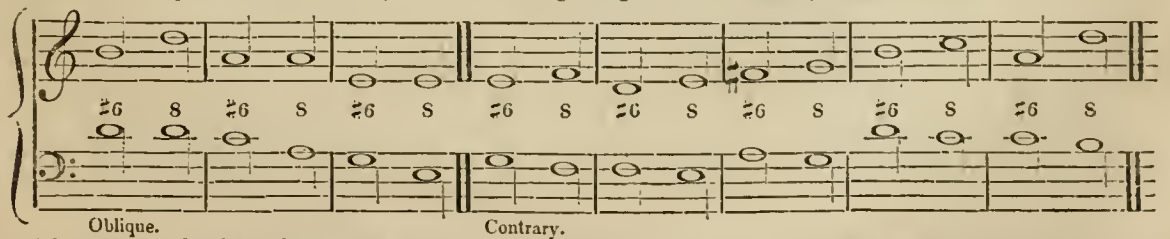


Sixths to any extent may follow each other, and by any motion, but better descending than ascending. In descending begin with the minor and in ascending with the major, in each case changing them alternately. Two major sixths follow better than two minor when one part divides upon the other, also when the parts move by single degrees, but they are not desirable by leaps. In quick divisions they may be used at pleasure if the parts move by single degrees.

Example of sixths:

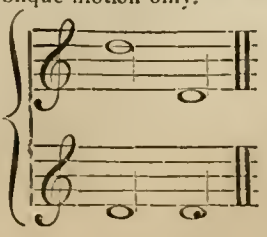


From a sixth minor to the octave is to be avoided. From the sixth major to the octave may be taken by oblique motion, but it is preferable by contrary motion and single degrees. It is bad by similar motion.

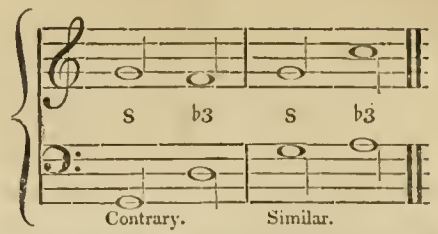


Of the concords, that of the octave is the most perfect; by oblique motion we may proceed from it to any other concord, except the third minor, but by the other motions we may go from it to the third minor. From the octaves.

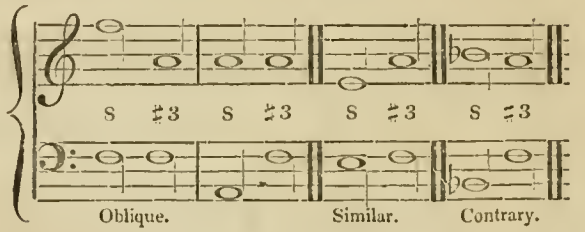
The unison after an octave is allowed by oblique motion only.



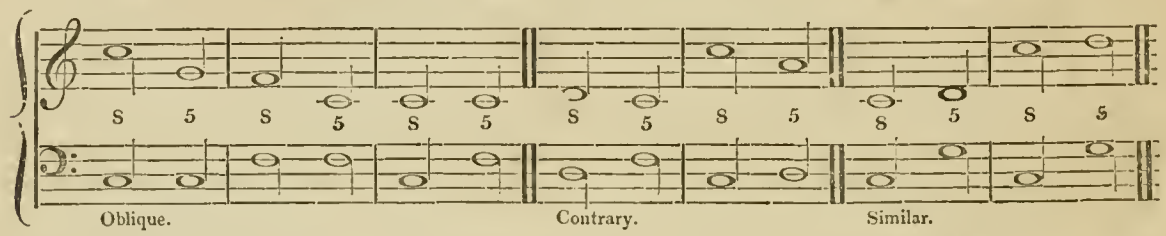
Music. From an octave to a third minor is preferable by contrary motion and a single degree, allowable in similar motion, forbidden in oblique. Music.



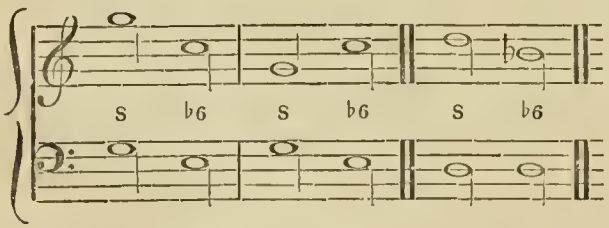
From an octave to a major third is allowed by all the three motions, one part must, however, move by a single degree in similar and contrary motion.

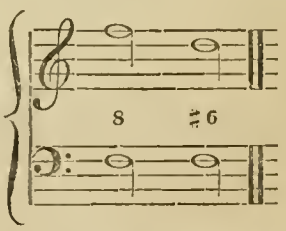


From an octave to a fifth is a good progression in oblique motion, and is permitted in contrary and similar motion, one part moving a single degree, but in similar motion it is forbidden if both parts move by leaps.



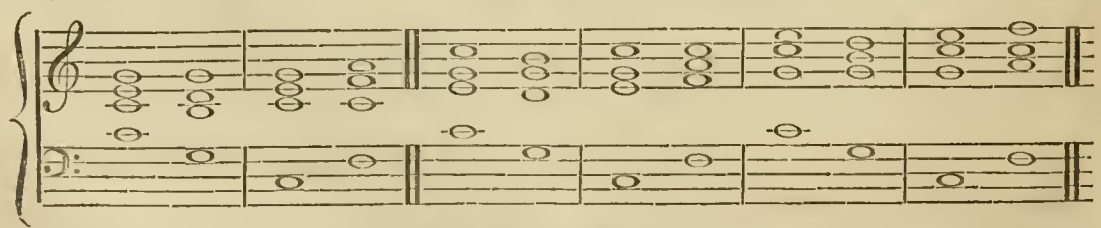
A sixth minor after the octave may be taken by any of the motions, but the sixth major after an octave is bad in similar motion.





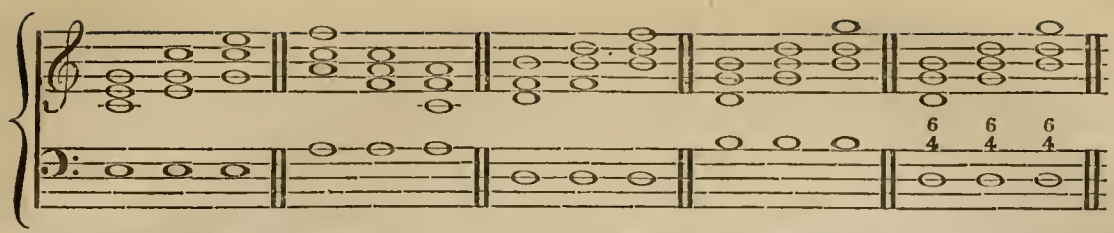
Major keys. It will be convenient, and equally answer the purpose, to use the key of C as an example for major keys in the following pages, as we shall hereafter that of A as an example of minor keys.

The perfect concords of the key are the fundamental basses, and require their common chords for their harmony.

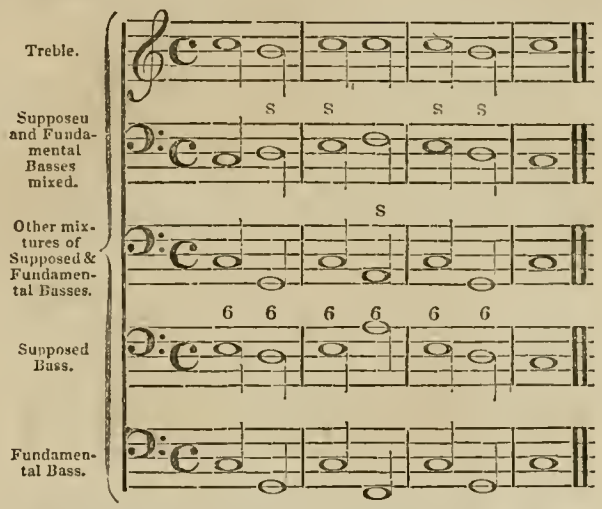


If the third, sixth, and seventh of the key are used as basses with uncommon chords on them, that is, their third, sixth, and eighth, they are supposed basses. Hence it is to be observed, that every bass note which has a sixth upon it is a supposed bass.

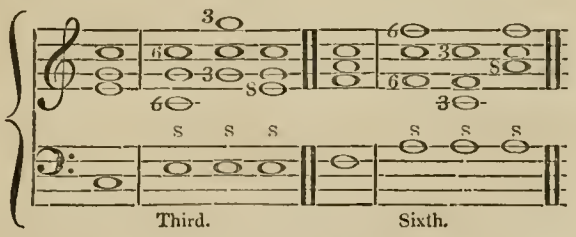
The key note, its fifth and fourth being the fundamental basses of the key, have major thirds for their supposed basses, that is, their thirds may be used as basses. It is only the fifth of the key that has two supposed basses, inasmuch as, besides its third, it may also have its fifth for its other supposed bass.



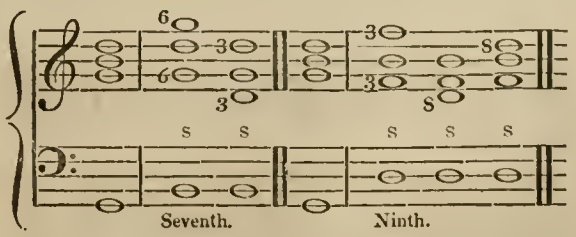
It is right to observe here that the supposed basses do not change the harmonies of their principals, hence the supposed harmony of the third of the key is in effect borrowed from the fundamental harmony of the key note; that of the sixth of the key is borrowed from the harmony of its principal, namely, the fourth of the key; and the supposed harmony of the seventh of the key is taken from the harmony of the fifth of the key; as also that of the ninth, of which it is the second supposed bass, and must consequently have its flat third, fourth, and sharp sixth for its accompaniments, its third being the seventh to the fifth of the key, its fourth the octave of that fifth, and its sharp sixth being the third to that fifth, which is the fundamental bass, to which the ninth, as fifth to it, serves for a supposed bass. In the following example, where the bass is supposed, it is marked with an S.



In the accompaniment, or making parts on the third and sixth of the key, when they are supposed basses, three methods may be adopted. The first and best is, doubling the sixth to the supposed bass; the next preferable is that of doubling the third to it; the last and worst way is doubling the octave.

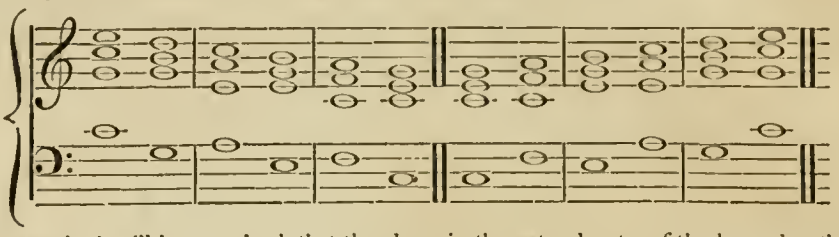


In the accompaniment upon the seventh and ninth of the key, that is making parts on them when the basses are supposed, only two methods are used. For the seventh the best way is to double the sixth; the other way is to double the third to the bass. For the ninth the preferable method is to double the third, the other way being to take the octave to that bass.



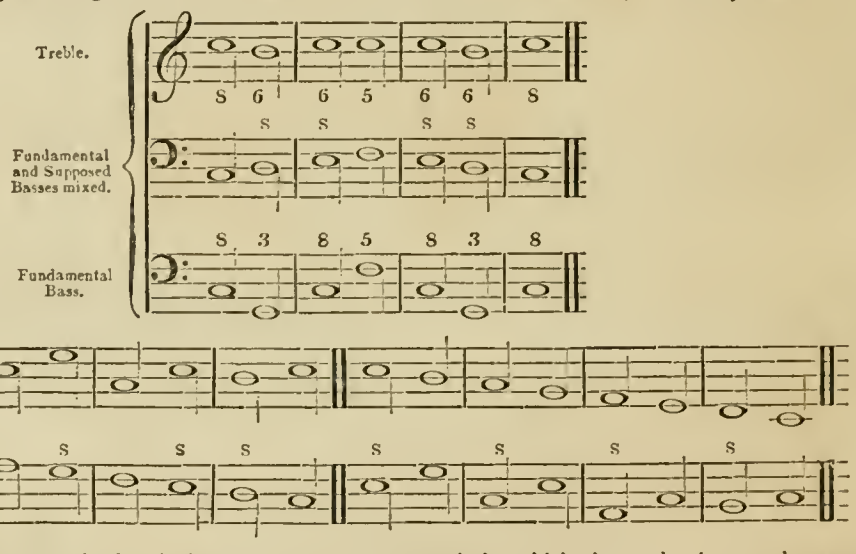
Thus far on the fundamental and supposed basses of the perfect concords of the key. There is, however, another way of modulating which produces great variety. We are still speaking of the key of C, and in strictness

Music. this way only leaves us in suspense as to the key we are in, and we may be said to continue in the above key because we avoid what would be directly contrary to modulating in it, as well as doing that which would decide our being in another key, as will be more distinctly explained when we treat of modulating from one key to another. The way to which we above allude consists in taking the imperfect concords of the key as fundamental basses, by making their fifths instead of their sixths accompaniments to them. For this is the characteristic which distinguishes fundamental from supposed basses. The harmony of the first being its third, fifth, and eighth, of the latter the third, sixth, and eighth; the former being named the *Common*, the latter the *Uncommon Chord*. The imperfect concords of the key may also have their supposed basses, borrowing their harmonies from them as principals; as the supposed basses of the perfect concords did from their fundamental basses, the supposed basses differing from the others, inasmuch as the supposed basses of the perfect concords are sharp thirds above them, and those of the imperfect concords are only flat thirds above them. Music.



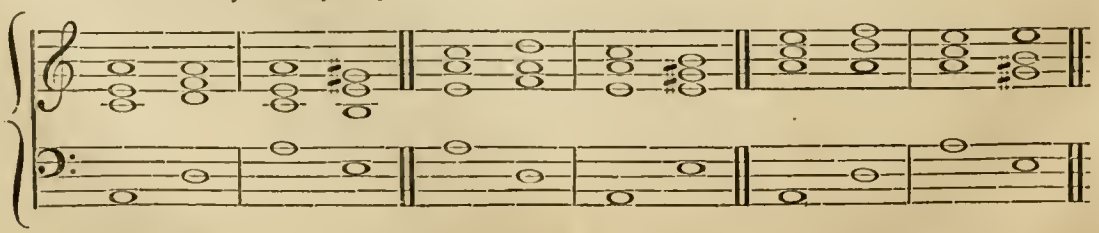
In the above examples it will be perceived, that they keep in the natural notes of the key; thus the supposed bass to E, the third of the key, will be G, the fifth of the key; and the supposed bass to A, the sixth of the key, will be C, the octave of the key. Now if these supposed basses had been sharp thirds to their fundamental basses, we should have no doubt as to the key we are in; for having G ♯ instead of G ♮, we must have gone from it into the key of A; and having C ♯ instead of C ♮, we must have proceeded to the key of D.

Hence it is apparent that by the intermixture of fundamental and supposed basses, of the perfect and imperfect concords of the key, we may have a great variety as well in the melody as in the harmony of the key used.



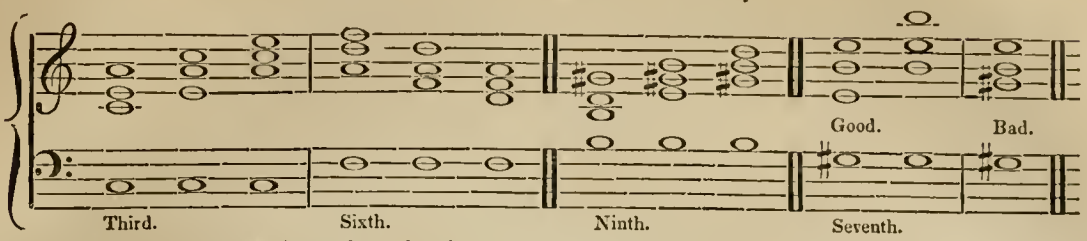
Minor keys. The major keys have been treated of with the key of C, as an example by which the reader is unembarrassed with sharp or flat signatures; for the same reason we choose the key of A as an example for minor keys.

The perfect concords of this key, as those of major keys, *viz.* the unison, fourth, fifth, and octave, require their common chords for their harmony; with this difference, that in it the key note and the fourth only have their thirds flat. The fifth of the key retains the sharp third, although naturally left flat in the diatonic scale of this key; for if it were left flat the key would not be decided as that of A. Hence in this, as in all other keys, the third of the fifth of the key is always major.



The imperfect concords and the discords of the key take the uncommon chords for their harmony, but the G

Music. must be sharpened if we decide the key of A: and here we will observe, that no accidentally sharpened note should be ever doubled in plain counterpoint, either in a major or a minor key. Music.



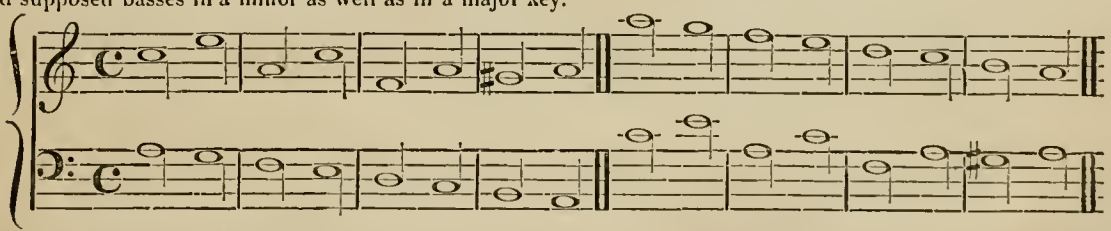
If the imperfect concords and the discords of the key are used as basses, with the uncommon chords for their accompaniments, those basses are supposed basses in all keys minor as well as major; but the seventh of the key of E in the diatonic scale, is accompanied by a fifth instead of a sixth. As the supposed basses take their harmonies from those of the fundamental which they represent, the third in a minor key consequently borrows its harmony from that of the key note. The sixth from that of the fourth of the key. The seventh being in lieu of the fifth of the key, takes its harmony from that of the fifth; and the ninth in flat as well as sharp keys is a supposed bass to the fifth of the key, except as above in E, where the ninth being only a semitone major above the octave cannot be a supposed bass to the fifth of that key, being but its defective fifth.

The difference between the supposed basses of the perfect concords of minor and major keys, is, that in the latter the thirds are sharp above their fundamental basses, whereas in the former the third and sixth of the key are supposed basses, a flat third above their fundamentals; but the seventh of the minor key is a supposed bass, a sharp third above its fundamental bass, inasmuch as in the key of A, the G must be sharpened to decide the key.

The ninth of a minor as well as a major key of a supposed bass, must have its flat third, fourth, and sharp sixth as its accompaniment; the sixth being sharp, because, as above mentioned, the G must be sharpened to decide the key of A. Hence the third, fourth, and sixth of the ninth of a minor key being the same as in a major key, the explanation need not be repeated. The same rules also apply to accompaniments upon the third, sixth, seventh, and ninth when they become supposed basses, merely observing, that if any notes are accidentally sharpened, such must not be doubled in the parts.

The rules for making the imperfect concords of the key fundamental basses in major keys, by putting their common chords for their harmonies, and of having, in their turn, sets of supposed basses, may also be used in a minor key, with this caution, that whereas in a major key the supposed basses of the imperfect concords of the key are flat thirds above their fundamentals, so in the supposed basses of the imperfect concords of a flat key the thirds are sharp above their fundamentals.

The same attention should be paid to the melodies going by degrees and leaps, and the mixture of fundamentals and supposed basses in a minor as well as in a major key.



The following rule is a general one for keeping in any key; it is, however, included in what has been given in the preceding pages, of which it may be considered a summary. It is, that the second of the key must always have a sharp sixth, the fourth of the key always have a third similar to that of the key note, that (in E excepted) the fifth of the key a sharp third, and the seventh of the key a flat sixth, (except in E.)

Descant, or figurate counterpoint.

Descant, which is the art of composing in several parts, is threefold. *Plain*, which is the groundwork and foundation of all Musical compositions, consists entirely in the proper placing of several concords as accompaniments to every note of the key we are in. The Italians call it *canto fermo;* in English it is known by the name of plain or simple counterpoint, as being an arrangement of note against note in concords only. The preceding portion of this Part has been devoted to this section of the subject. *Double descant* is that in which the parts are so contrived that the treble or any high part may be made the bass, and the contrary; this will incidentally be noticed in speaking of *figurate or florid descant*, which consists in a mixture of concords and discords following each other, and may be termed the ornamental and rhetorical part of Music, as it induces all the varieties of points, syncopes, diversities of measures, and all that is capable of adorning a composition. By the Italians it is called *canto figurato*. Preparatory to entering upon this it will be necessary to consider the method of preparing and resolving discords.

Preparation and resolution of discords

It has already been stated that seconds and sevenths are the natural discords; before, however, showing how they are to be used, we will observe that they may be prepared and resolved either in the upper part or in the bass, the interval being reckoned either as ascending from the bass to the treble, or as descending from the upper part to the bass, as the discord may chance to be employed.

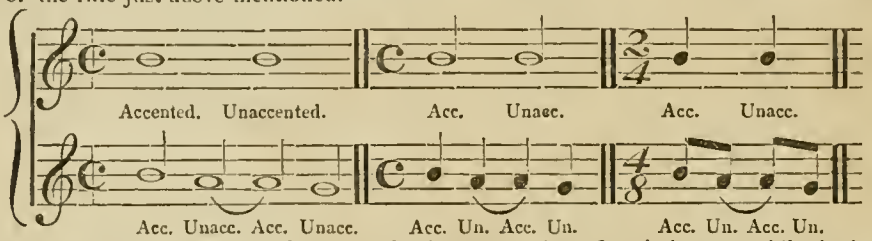
In harmony, discords are considered as so made by the note next immediately above them being struck with them. Thus the second and seventh, as also any other note, as a third, fourth, fifth, sixth, or an eighth, may be made a discord. Therefore a discord is in harmony the lowest of two adjoining notes that sound together.

Music. Hence in the case of the second, which is not really the discord though so called, it is the unison at the bottom which is the discord, being so made by the second; and it might fairly be said that the rule is vague in terms which declares that the second must be prepared and resolved in the bass. Practice, however, having so established the terms, we leave them as we find them to avoid intricacy. Music.

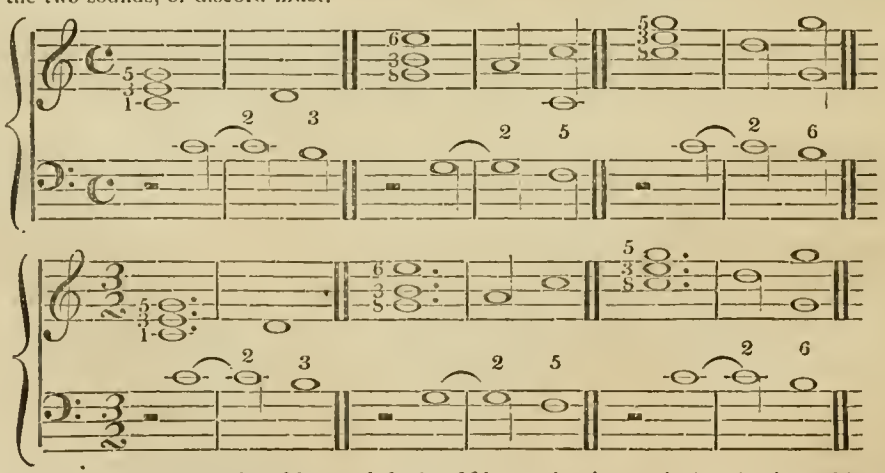
In practice, although there be only two natural discords, three discords are reckoned, namely, the second, the ninth, and the seventh. The ninth is, indeed, only a replicate of the second if simply considered, yet being differently used it is differently treated; inasmuch as the ninth being made a discord by the third, its necessary accompaniment, it is always prepared and resolved in the upper part, whereas the second is universally prepared and resolved in the bass; besides which it may be used in two parts, which is not allowable with the ninth.

It is most common to prepare and resolve the seventh in the upper part, but it is nevertheless sometimes prepared and resolved in the bass, on which account, perhaps, it has had two different names to distinguish it; but practice has not encouraged the distinction, because the seventh prepared and resolved in the bass is in fact nothing but the second; because this seventh in the bass is made a discord by the second or its replicate, or the note next above it, as it is also its necessary accompaniment; whereas the seventh in the upper part is really what it is called, being made a discord by the bass, the octave (below) to the note which makes such seventh a discord, and which is represented by the octave below.

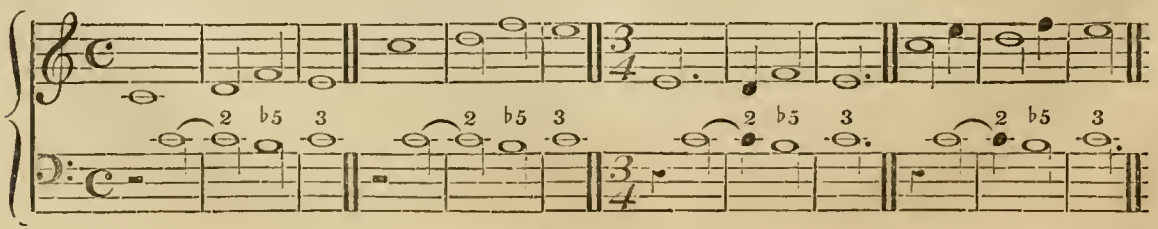
When a note is treated as a discord it must be prepared in the unaccented part of a bar, by being there struck as a concord; in the following accented part of the bar, the same note holding on, is made a discord by sounding with it the note next above it or its replicate; and in the next following unaccented part of the bar, the discord is resolved by descending a single degree, either of a whole tone or semitone major to a concord. Where there are, in common time, two equal notes in a bar, the first is accented and the second unaccented; but as we have already explained accent, we refer our reader back to what has been said under that head, merely subjoining here an illustration of the rule just above mentioned.



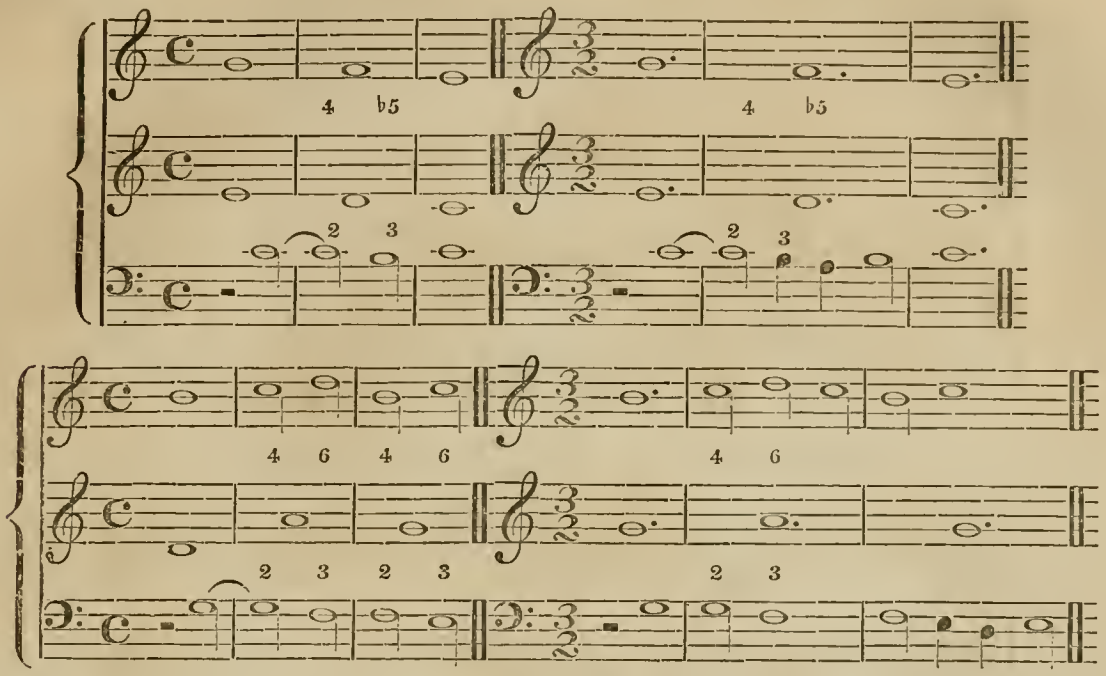
The second. There are two sorts of seconds, major and minor; the former consists of a whole tone, while the latter contains a semitone major. Both of them are prepared in the bass or lower part. The major second may be prepared by any of the concords, and resolved in any but the eighth; it must consequently fall to the resolution, that is the lowest note of the two sounds, or discord must.



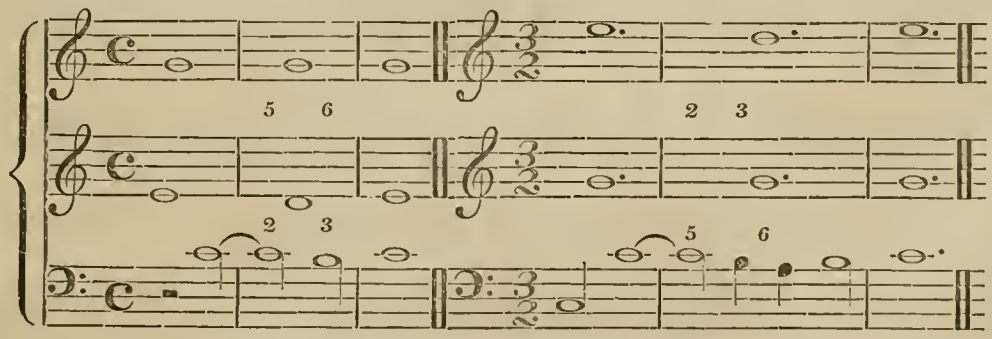
Besides this resolution of the second, a false or defective fifth may be the resolution, in the treble rising a third to it: but then the bass must afterwards rise one degree, and the treble at the same time descend one degree, in order to resolve the false fifth. In three parts, the accompaniment to this second is sometimes the fourth and sometimes the fifth.



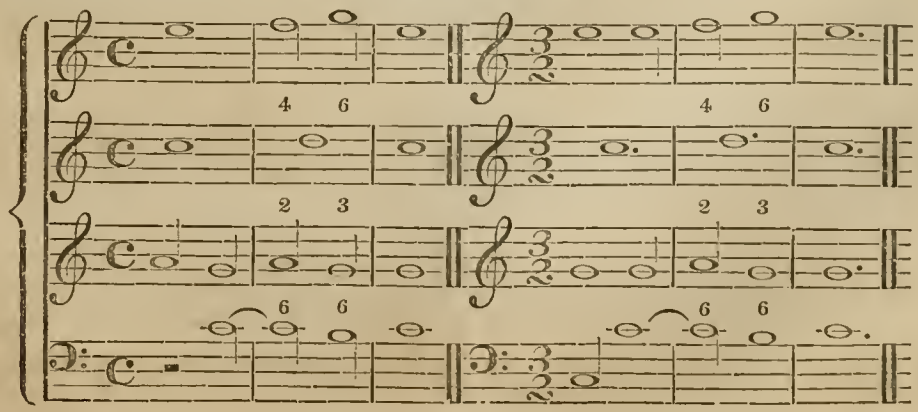
Music. If the fourth be taken with the second, and the two upper parts keep on the notes they previously had, the bass descending one degree for the resolution, the second thus becomes a third, and the fourth will become a perfect or a false fifth, the last being preferable. When, however, the fourth instead of holding on rises one degree it becomes a sixth Music



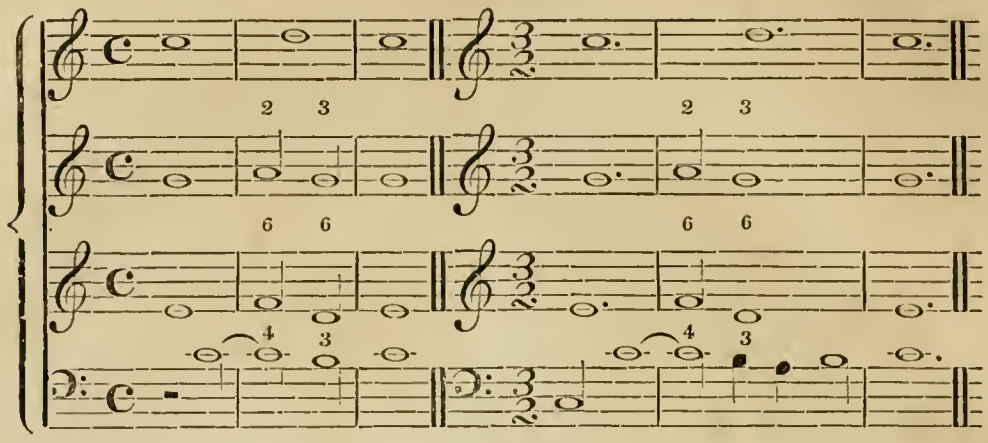
If the fifth is taken with the second, and the two upper parts hold on the same notes, the bass descending one degree for the resolution, the second thereby comes to be a third, and the fifth a sixth. In four parts, this second is accompanied by the fourth and sixth. The fifth may also be used instead of the fourth and sixth.



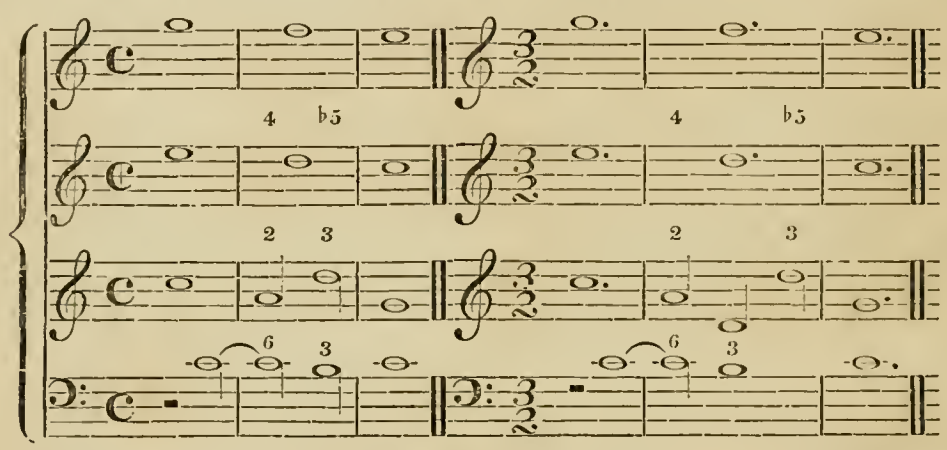
When the fourth and sixth are taken with the second, if the bass descend one degree to the resolution, the fourth rises one degree and so becomes a sixth, and the sixth descends one degree and thus continues to be a sixth; in using this method the sixth is doubled, which is the best way.



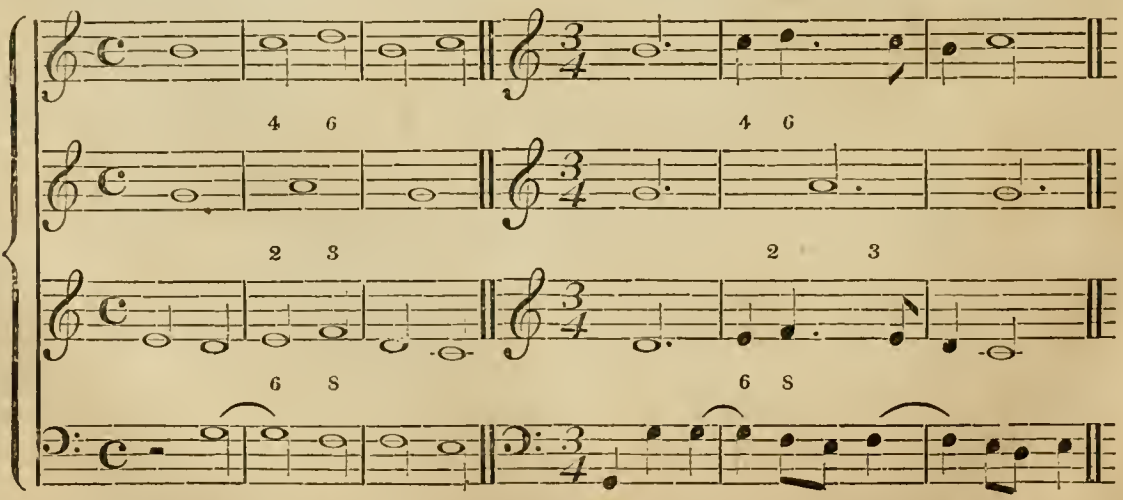
Music. There is another way by which, at the time of the resolution, the second keeping on becomes a third, and the fourth dropping a third also becomes a third. The sixth falls one degree and continues a sixth; by which method the third is doubled. Music.



If, at the time of the resolution, the second by keeping on becomes a third, and the fourth keeping on becomes a fifth, the sixth by rising a fourth, or falling a fifth, makes the third again double.

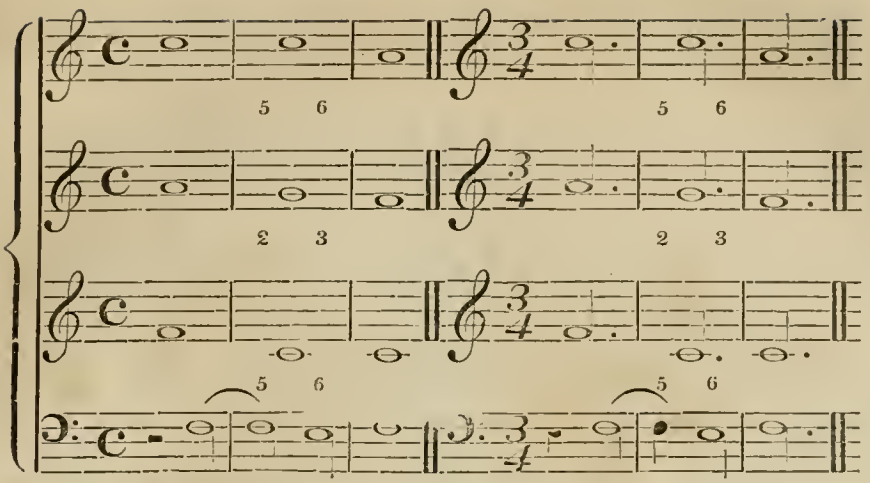


The last and least harmonious way is, when the fourth rising one degree becomes a sixth, the sixth rising one degree becomes an eighth, and the second by keeping on becomes a third on the resolution.

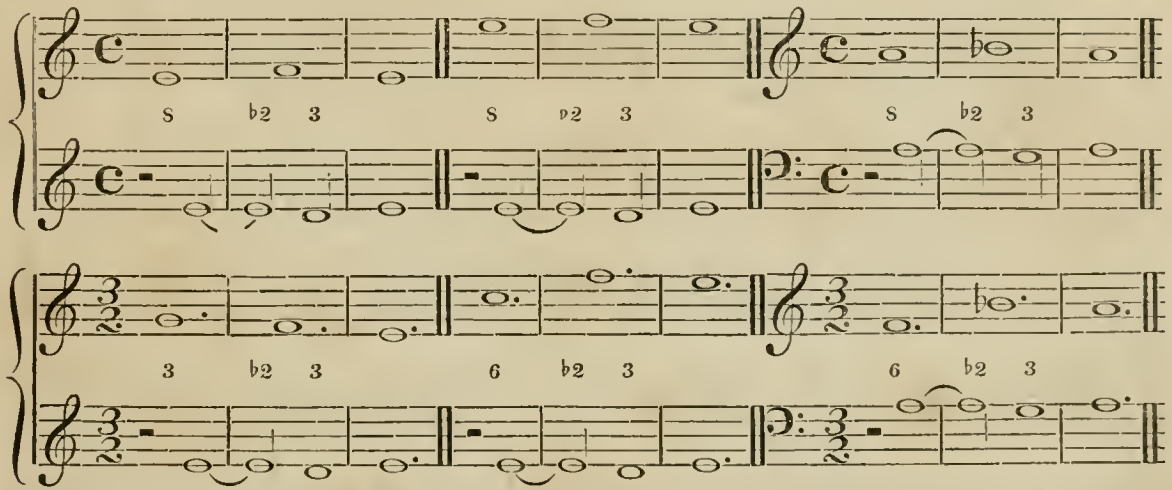


If the fifth is taken with the major second, instead of the fourth and sixth for completing the fourth part, the fifth or the second must be doubled. It is preferable to double the former

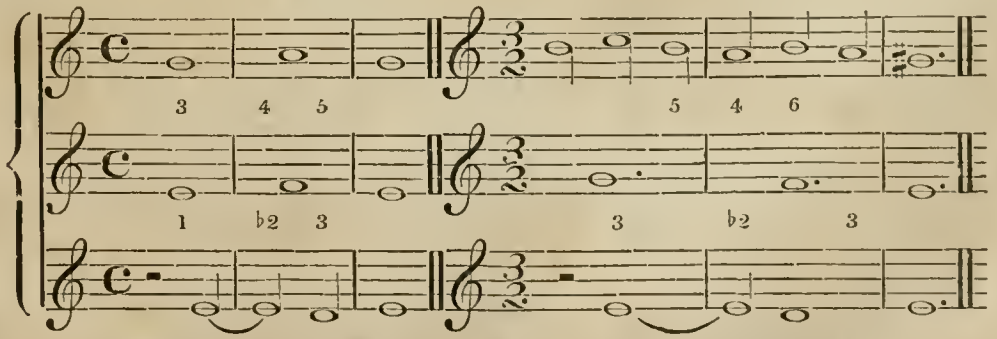
Music.



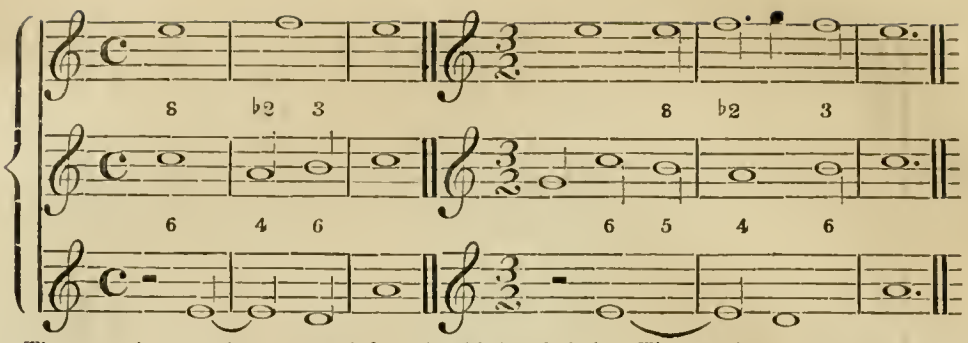
The minor second, which the reader will recollect is but a semitone major above the unison or bass, has the same preparation as the major second, except in the fifth, in which it must not be prepared. And it is necessary to observe that the best resolution of it is into a third.



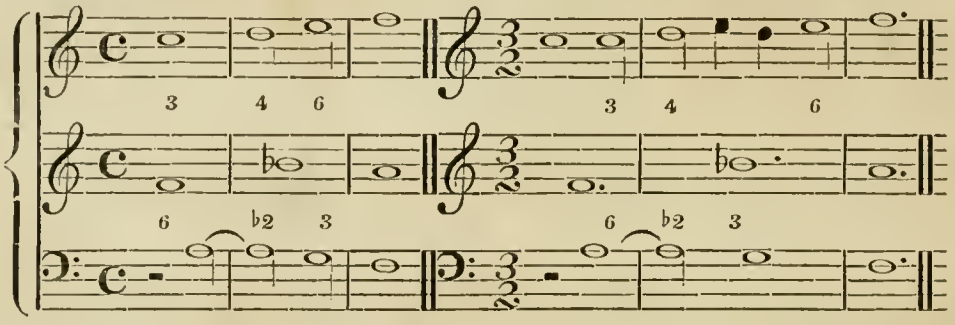
When the minor second is employed in three parts, it must be accompanied with the fourth and never with the fifth. There are three ways of using it. First. The fourth with the minor second, in which case the upper parts hold on, whilst the lower or bass descends to resolve it; thus the second becomes a third and the fourth becomes a fifth, then the two upper parts both fall one degree and the bass rises one degree, and the whole may serve as a final cadence.



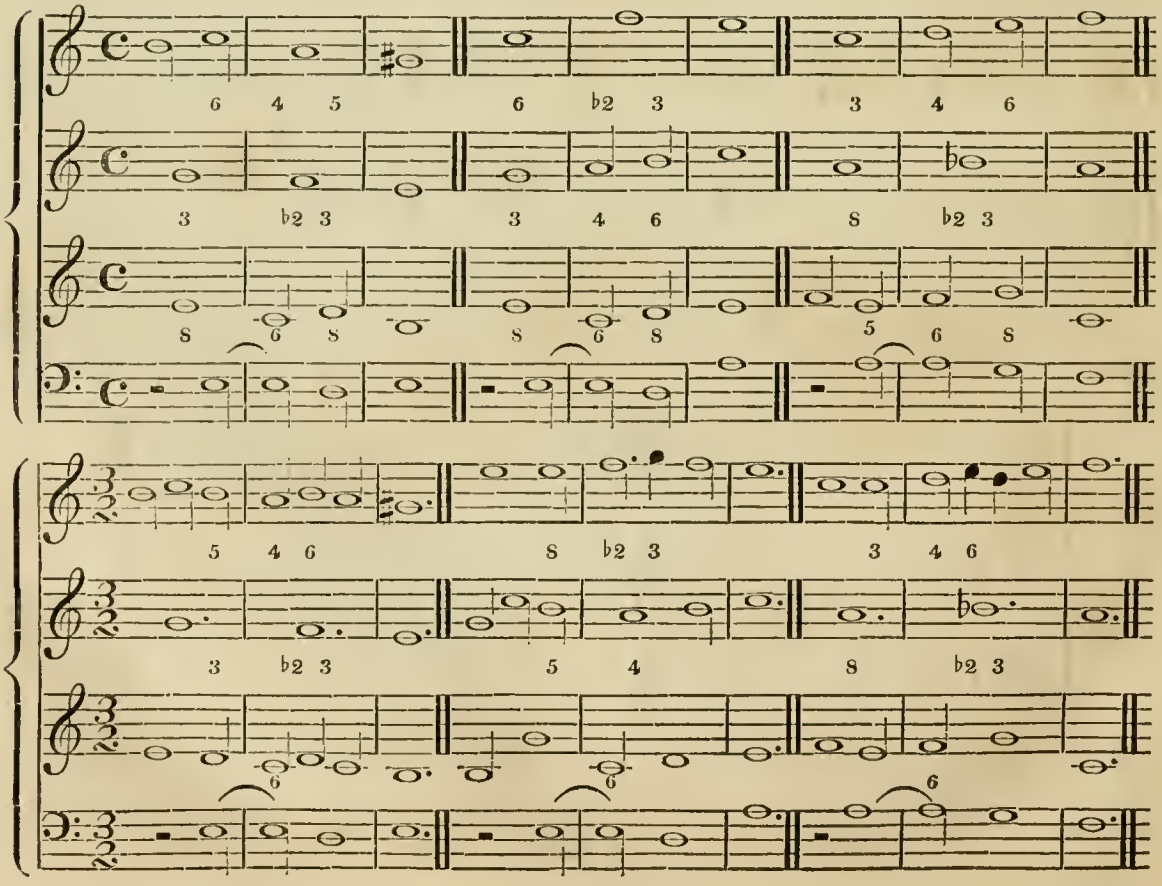
Second. The preparing note is accompanied by the sixth and eighth. The eighth rises to the ninth where it stays till the resolution is over; the sixth falling a third thus becomes a fourth, accompanying the second, which fourth, on the resolution, rises one degree, thus becoming a sixth; this afterwards rising one degree more, the other upper part falling one degree, and the bass contemporaneously rising a fifth, the upper parts will then become a third and fifth to that bass. This arrangement serves as a middle cadence.



Third. The preparing note is accompanied by the third and sixth. The part in which the third appears is to rise one degree and become a fourth; that part carrying the sixth is to rise a fourth, thus becoming a second, which holding on is a third on the resolution; whilst the fourth rises one degree becoming a sixth, this sixth afterwards rising one degree more, the other upper part and the bass each falling one degree, the upper become a third and eighth to that bass.

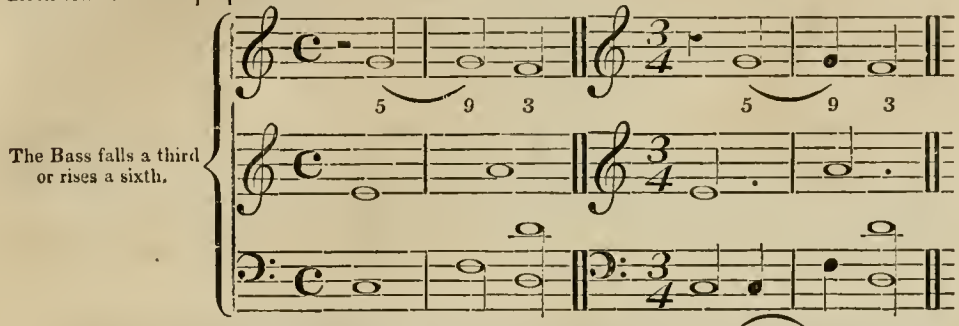


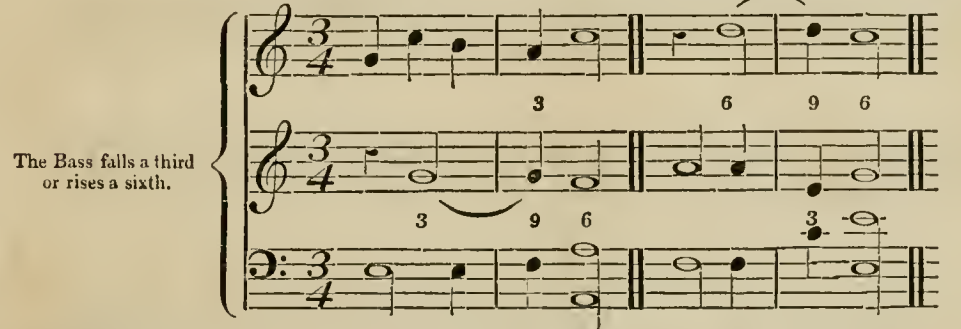
When four parts are employed, the sixth and fourth are taken with this second. As in the following example.

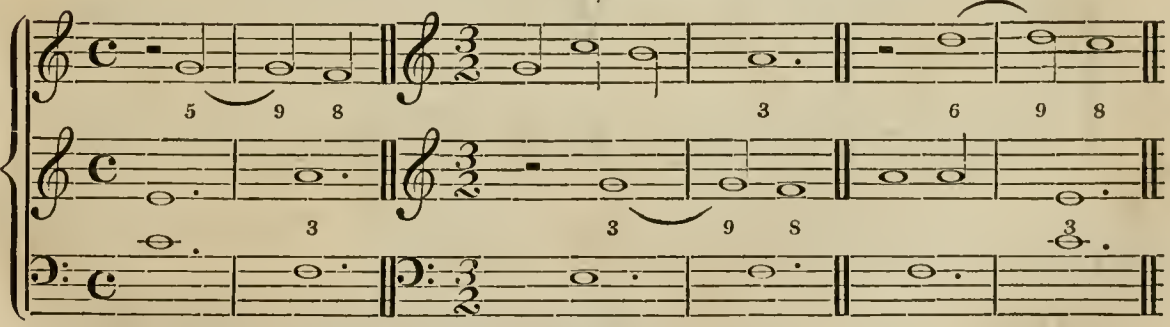


Music. It has already been stated that the discord of the ninth is not so called merely because it is the replicate of the second, and that the distinguishing character between these discords in harmony, does not arise from the distance between the two notes in the several parts, inasmuch as the interval, if a real second or a real ninth, bears the name of the second if prepared and resolved in the bass, but invariably of a ninth if prepared and resolved in any of the upper parts. Like the second, the ninth is of two sorts, major and minor; but each is prepared and resolved in an upper part; and to use them at all there must be at least three parts, because of their requiring the accompaniment of the third or its replicate, by which they are made discords. Music. The ninth.

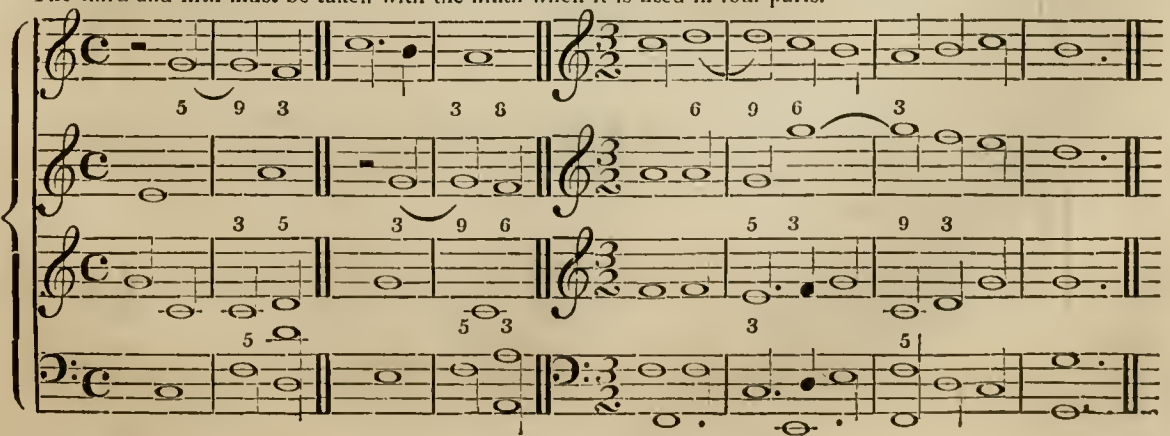
The major ninth is prepared by a third, by a fifth, and occasionally by a sixth, never by an eighth. Its resolution is by a third, a sixth, or an eighth, from each of the concords in which it is prepared. In most of the following rules we shall not give an example in each time, but alternately; from those that have already been given the reader will have become acquainted with the accented and unaccented parts of the bars which are necessary to be attended to in the preparation and resolution of discords.

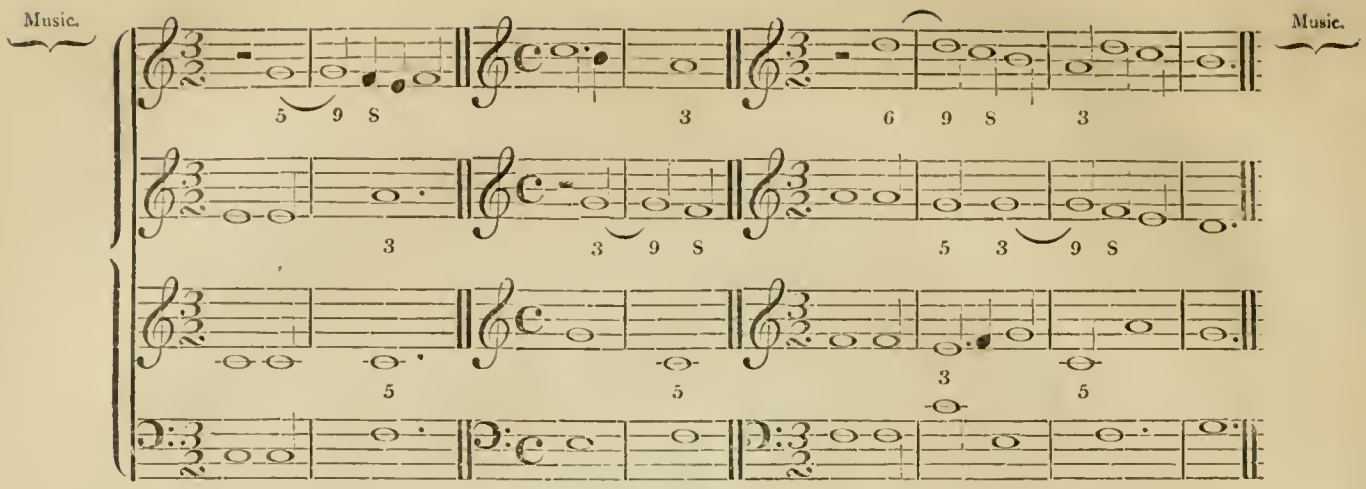




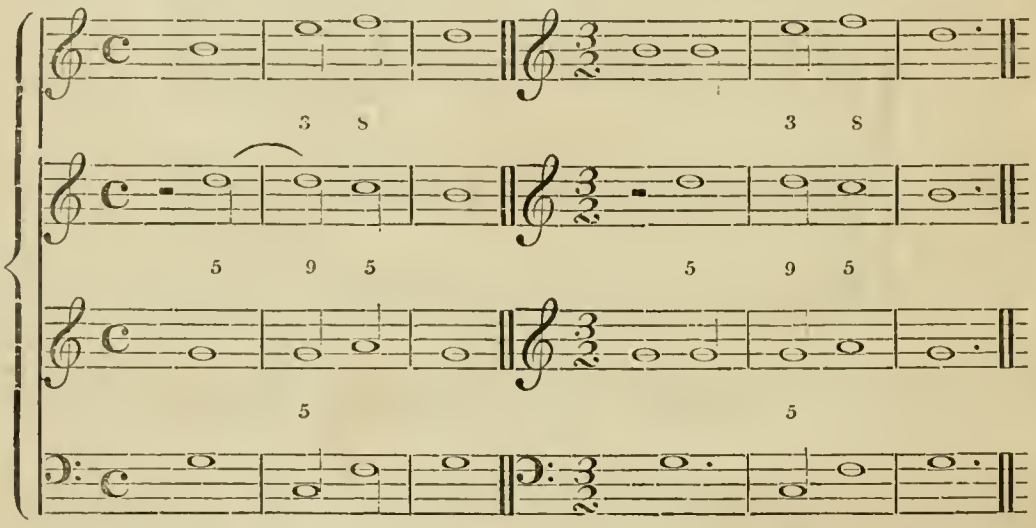


The third and fifth must be taken with the ninth when it is used in four parts.

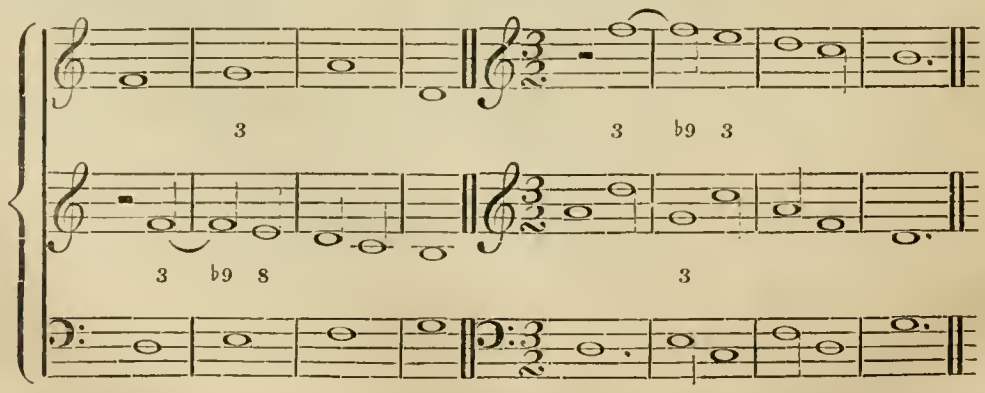




Independently of the above resolutions of the ninth, it may be resolved by the fifth, if the bass rise a fourth or fall a fifth when the upper part falls one degree for its resolution. It must be accompanied at the resolution by an eighth if the piece be in four parts.

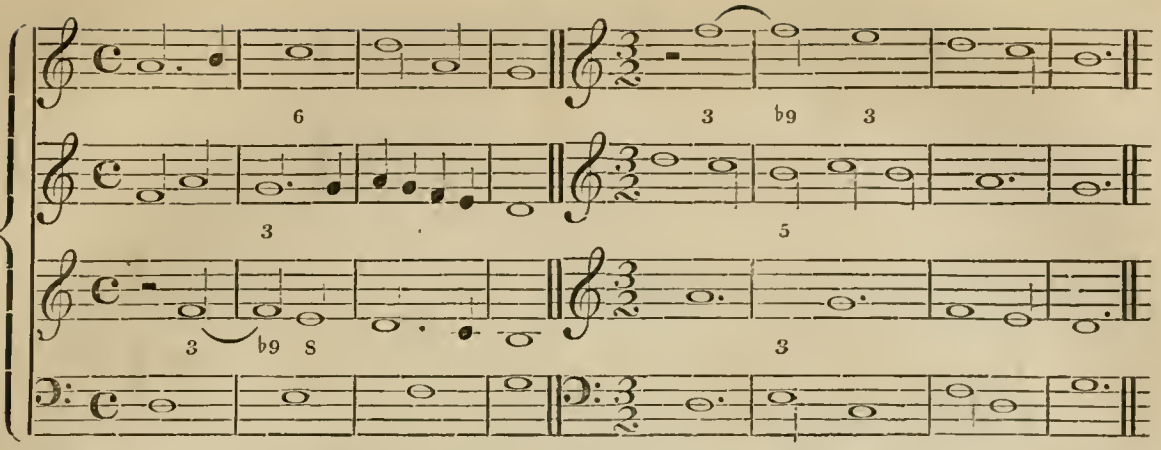


The minor ninth is prepared in the third only and resolved in the eighth, if the bass hold on till the resolution is made; but it is resolved in the third if the bass descend a third on the resolution. These resolutions, however, must be followed by something further, as will be seen by the examples.

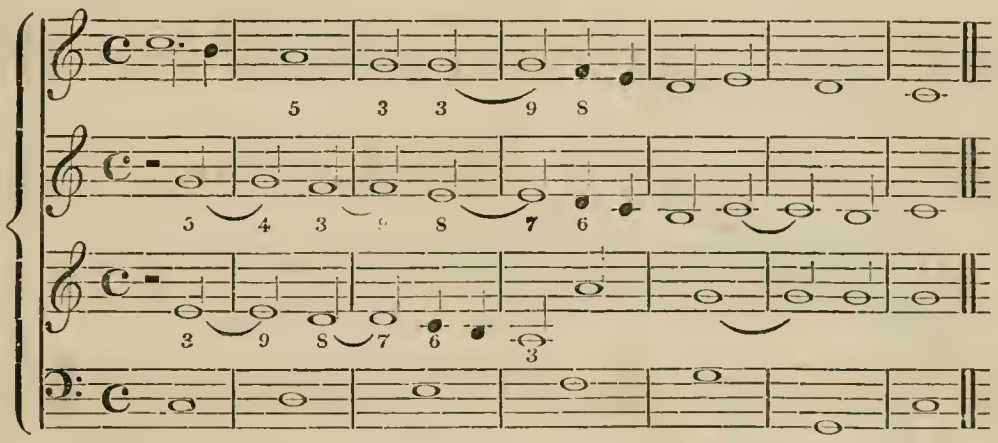


When the Music is of four parts, the sixth, and sometimes the fifth, accompany it; of the two the former is most agreeable if the bass keep on at the resolution; but either of them may be used if the bass descend a third at the resolution.

Music. Music.

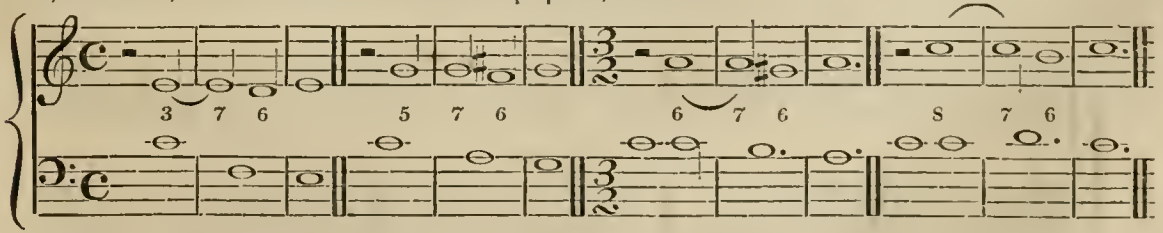


The ninth may have other discords mixed with it. For example, it may be mixed with the fourth, and in that case the fourth must be also prepared and resolved as a discord. The ninth may be also mixed with the seventh, which must also be separately prepared and resolved. It is to be held in mind, that when the fourth and ninth are mixed the fifth must be in the fourth part, and when the seventh and ninth are mixed the third must be in the fourth part.



The other natural discord is the seventh. Which is also of two sorts, the major, which contains one semitone major less than the octave, and the minor, which is one whole tone less than the octave. These sevenths are both prepared and resolved in the treble as well as in the bass, most generally, however, in the upper part. They will be here classed under those two heads. The seventh.

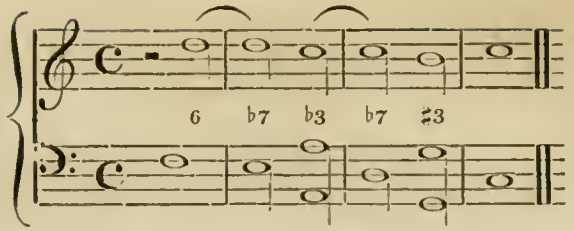
The preparation of a major seventh, is a third, a fifth, a sixth, or an eighth. Its resolution in a third, a sixth, and a fifth, from the concords in which it is prepared, as under. Prepared and resolved in the treble.

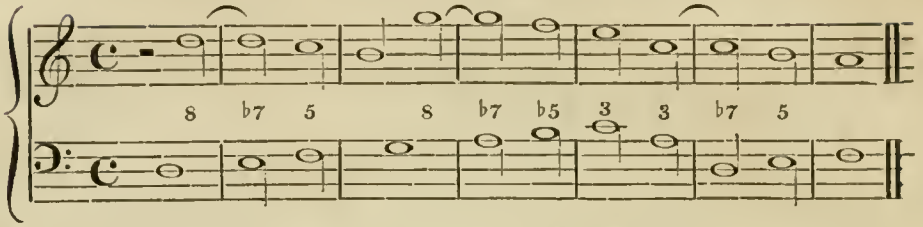


We may here remark, that the sharp seventh must have the major third on its resolution, otherwise the bass would rise a tritonus or descend a semidiapente, which are unallowable skips. For example, when the seventh is between F and E, it is resolved into a third major to avoid the tritonus. This seventh is resolved into a sixth major, the bass holding on. It may be resolved into a sixth minor, if the bass rise a semitone minor at the resolution.

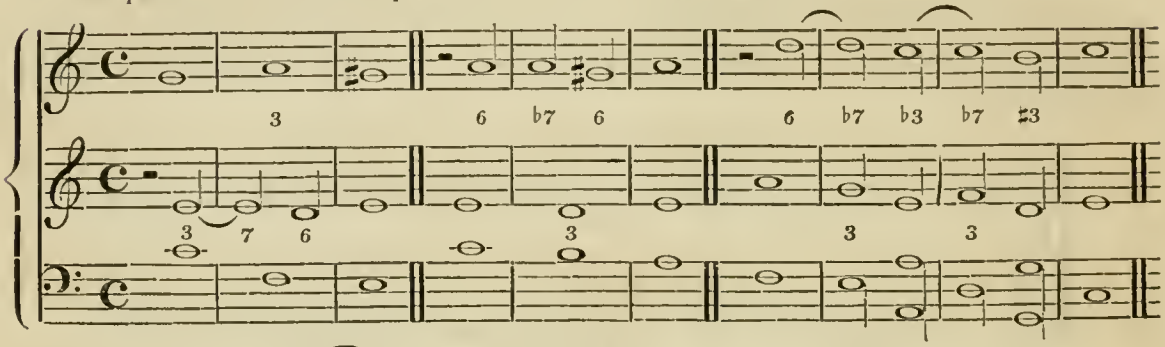
The minor seventh is prepared in a way similar to that of the major seventh, but it can only have its resolution in a third or a fifth. The third into which it is resolved may be either major or minor, as the discord respectively descends a semitone major or a whole tone. If on its resolution into a fifth, the upper part descends and the bass rises, each a whole tone, the fifth will then be a defective one, and in this case the treble afterwards descends one more degree, and the bass must ascend another to resolve the semidiapente.

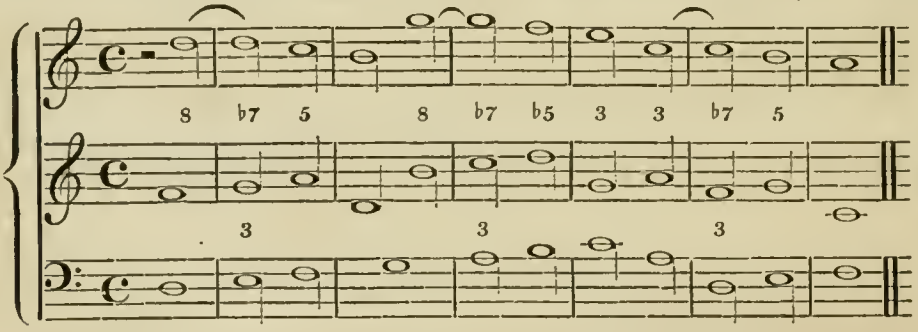
Music. Music.



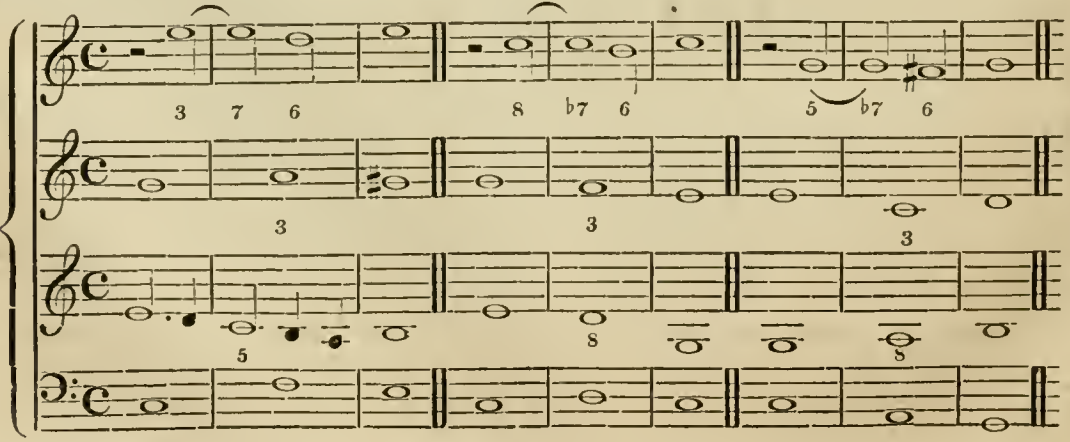


In three parts both the sevenths require that a third should be taken with them.

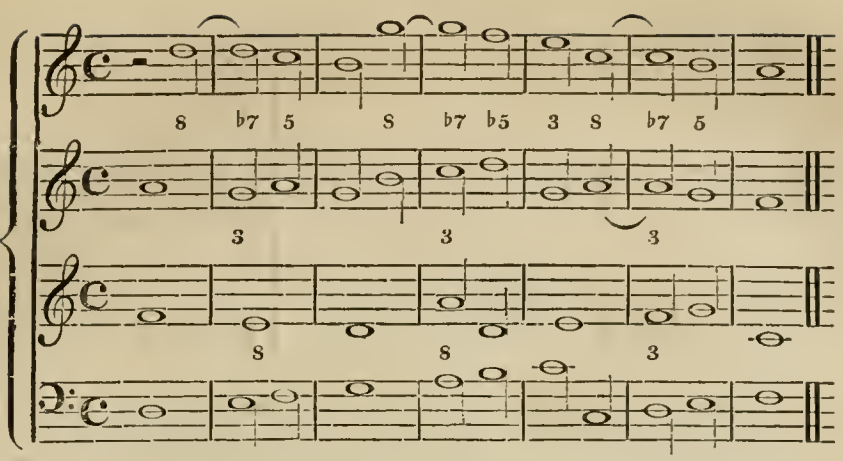




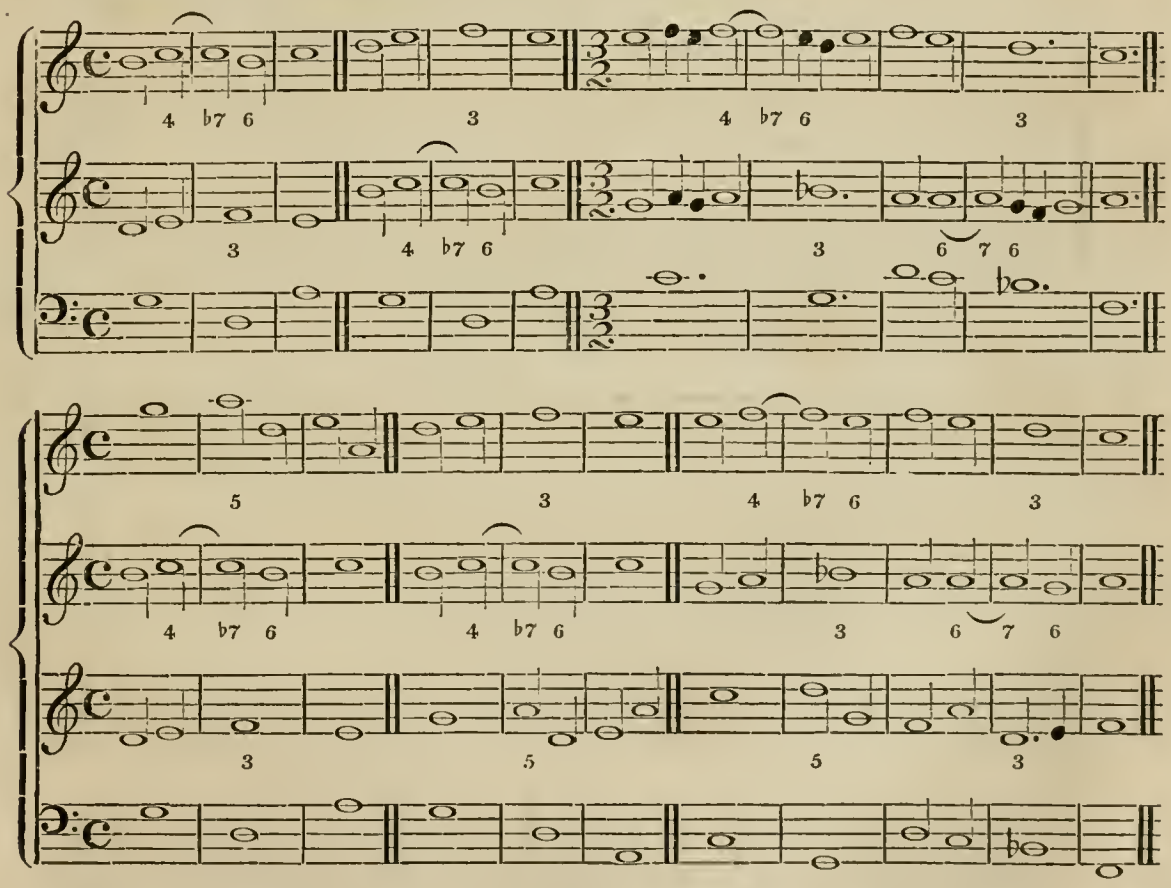
When four parts are used, both the seventh major as well as minor must have the accompaniment of the third and fifth. If the fifth does not come in, the preferable way is to double the note to which it is a seventh, and not to double the third.



Music. Music.



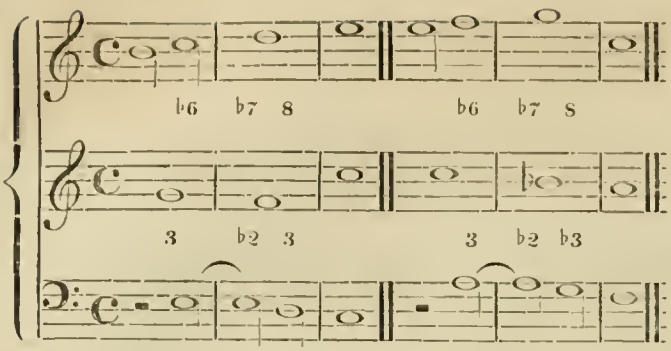
The seventh minor may also, in three or in four parts, be prepared in a fourth, and finish, for variety's sake, in the third, instead of closing in the eighth with the part that had the seventh, but the third part must end with the fifth. All these modes of using sevenths will answer for cadences.

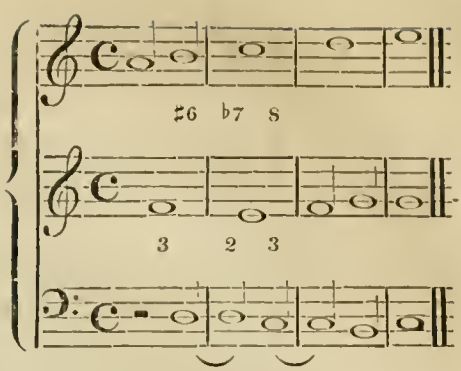


Sevenths, whose preparation and resolution are in the bass or lower part, must not be practised in less than three parts, inasmuch as they must have the accompaniment of the second or its replicate, which, it has already been observed, is the note which makes them discords. These sevenths are reckoned from the upper sound downwards to the lower, and are of two sorts, major, that is a semitone major, and minor, being a whole tone less than the octave, counting downwards from the lowest of the two adjoining notes in the upper parts. Prepared and resolved in the bass.

The minor seventh is prepared in the third minor, the fifth, and in either of the sixths, never in the eighth, in order that two consecutive octaves may be avoided, because it can only be resolved in the eighth. If it be prepared in the sixth minor, the bass must be in E or A. If in the sixth major, the bass must be D or G, if it is the intention to keep in the natural scale.

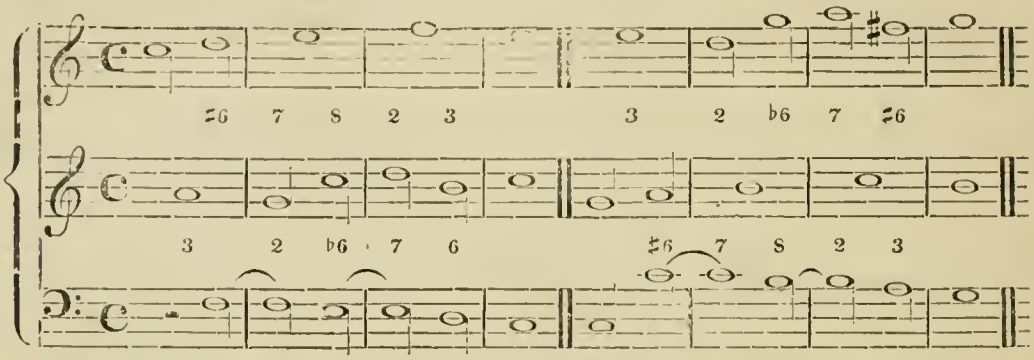
Music.



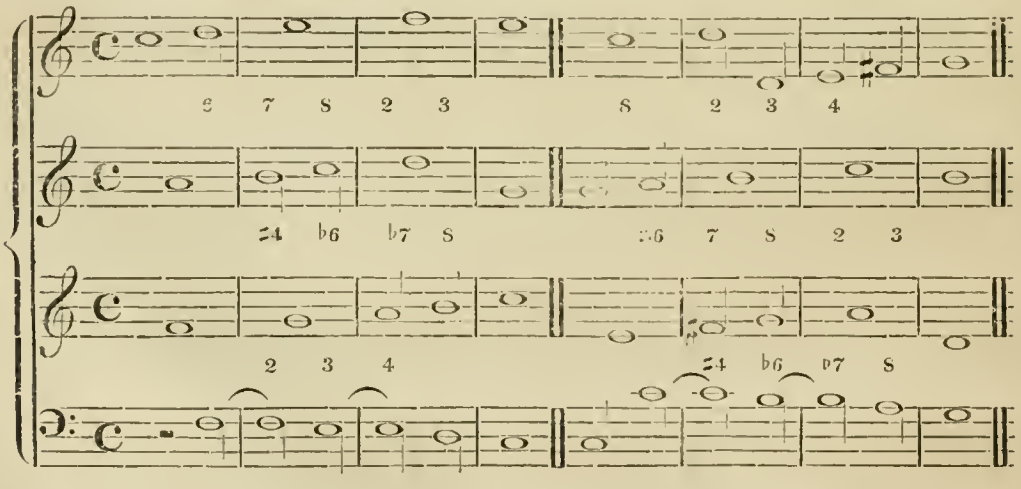


Music.

The seventh major is prepared in the third major, in both the sixths, rarely in the fifth, never in the eighth. Its best resolution is in the eighth, which must be accompanied by a sixth. It may also have its resolution in a sixth, which must have the accompaniment of a third. When the seventh major is prepared in the sixth major, the bass, if we intend keeping in the natural scale, must be B or E.



In four parts, it is necessary that either of the sevenths (prepared and resolved in the bass) should have the accompaniments of a seventh and a fourth.

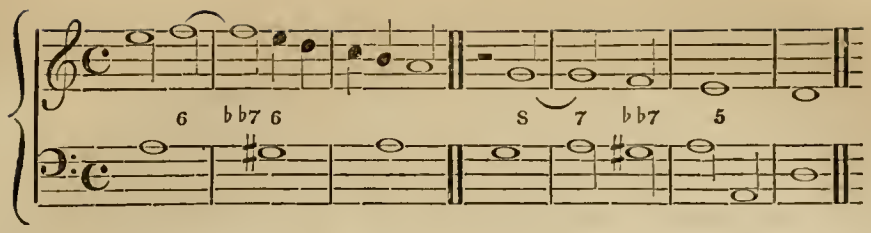


Diminished or extreme flat seventh.

We have now said as much as we think necessary in a Treatise of this nature, relating to the seventh when prepared and resolved in the bass. It may, however, be well to add, that besides these sevenths there is still another which, in ancient Music, was confined in its use to instrumental Music chiefly. It is called the diminished or extreme flat seventh. It is created when the natural flat seventh, prepared and resolved in the treble, is made still flatter by sharpening accidentally the note in the bass. The interval is such as that between G ♯ and F or between C ♯ and B ♭, &c., G and C being sharpened in the bass.

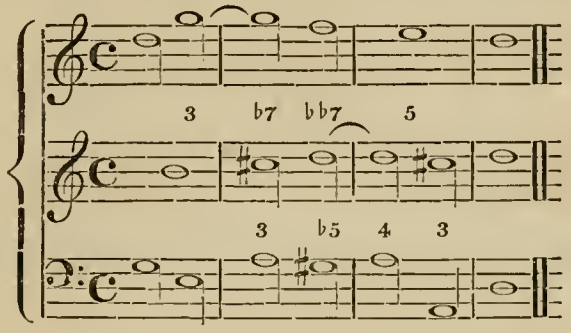
If we use the diminished seventh as a discord, its preparation and resolution must be in an upper part. It is best prepared in a sixth; into which concord it is again resolved by removing the accidental sharp in the bass on the resolution. The best resolution is into a major sixth, by the upper part descending only a semitone major; but it may also be resolved into a sixth minor, if the treble descend a whole tone on the resolution.

Music.

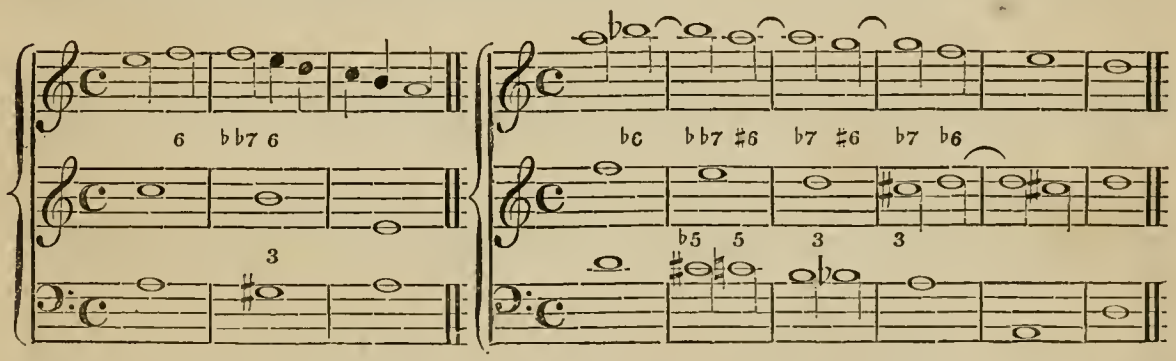


Music.

It is to be observed that we may use the diminished flat seventh without syncopation; it must then, however, be preceded by a concord and followed by a fifth or by a third. The natural flat seventh, when syncopated, may sometimes be resolved into the extreme flat seventh, which must afterwards be followed by more.

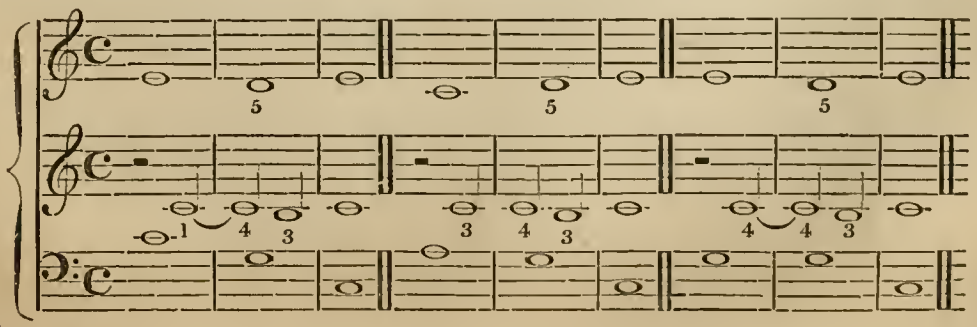


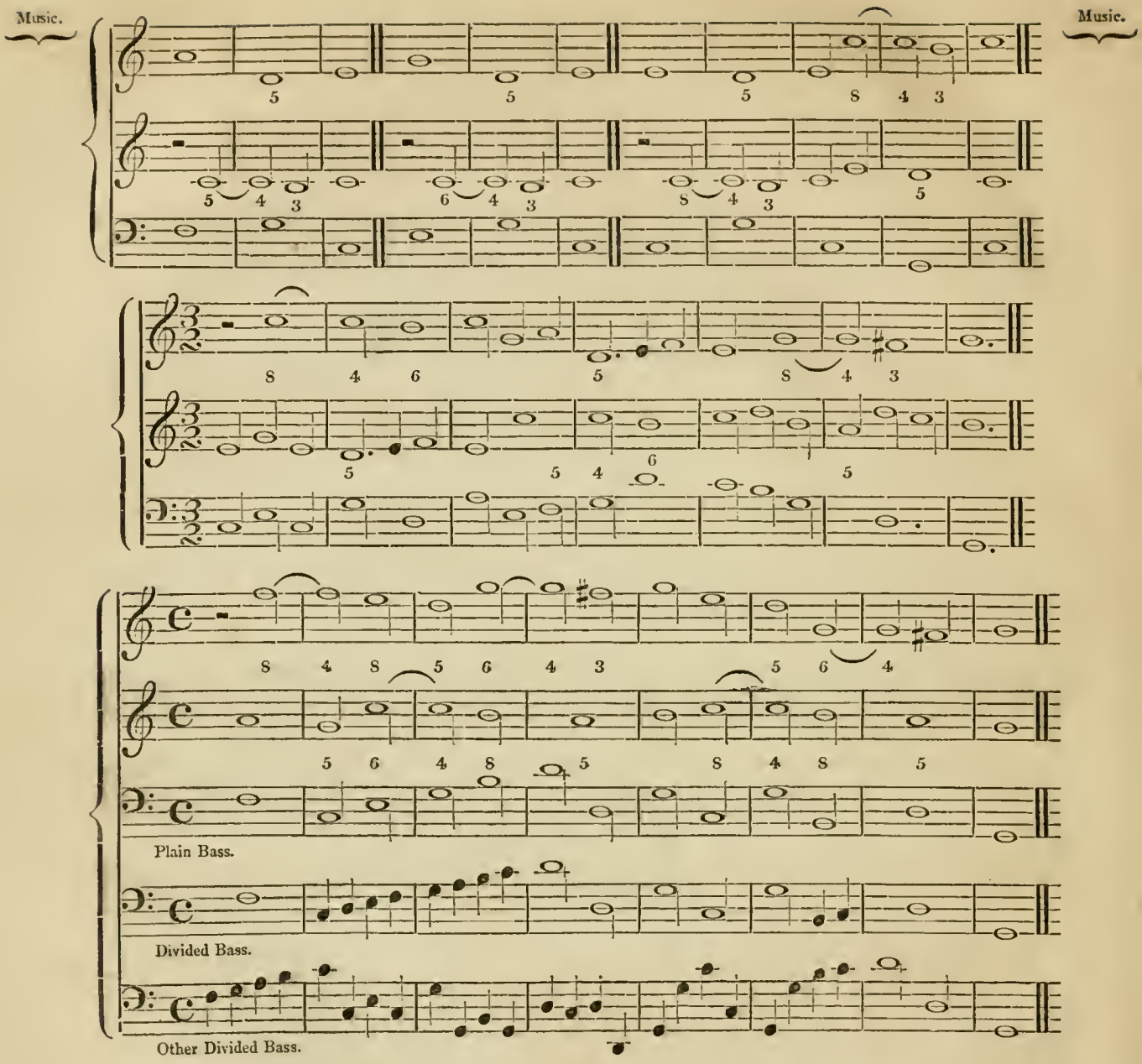
If the Music be of three parts, the accompaniment must be a third or a semidiapente. If of four parts, the third and semidiapente or flat fifth must be taken with it.



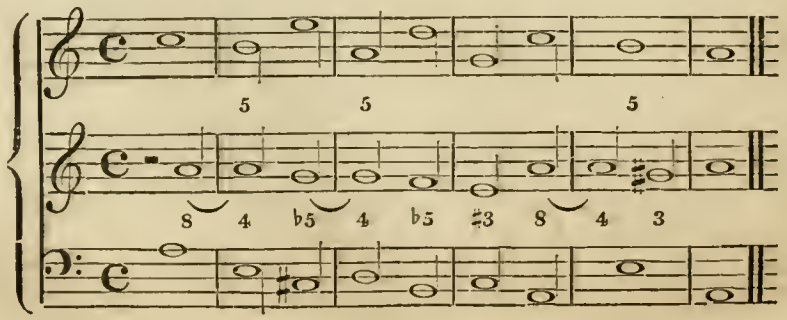
Our next duty, having explained the use of the natural discords, will be that of showing how the artificial discords are treated, which we so call because of their being created discords of concords by the next note above being sounded with them. Those most employed are the fourth and fifth made discords. If with the fourth the fifth is placed and used at the same time, it becomes a discord. The preparations and resolutions are as follows: it may be prepared in the eighth, sixth, fifth, and third, and resolved by the third, sixth, and eighth, if the treble keeps on, and the bass rises a fifth or falls a fourth, rises a third or falls a sixth, rises one degree or falls one degree. Or it may be similarly resolved if the treble falls one degree, and the bass keeps on or rises a fifth, or falls a fourth, or rises a third or falls a sixth. The resolution of it in an eighth is best when made on a divided bass.

Artificial discords. Fourth

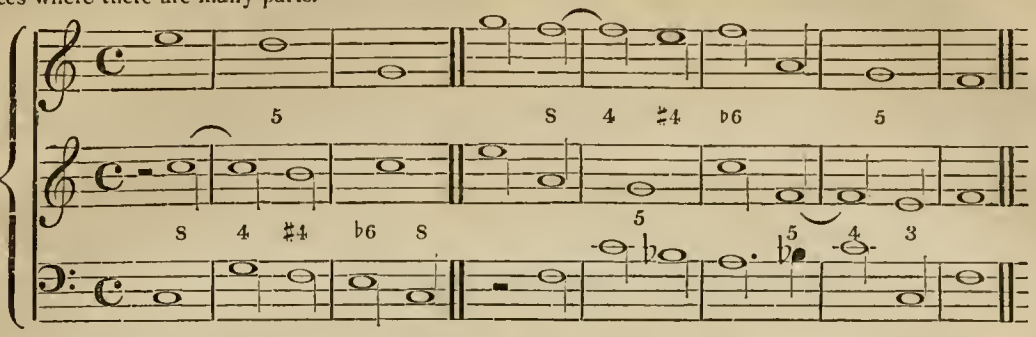




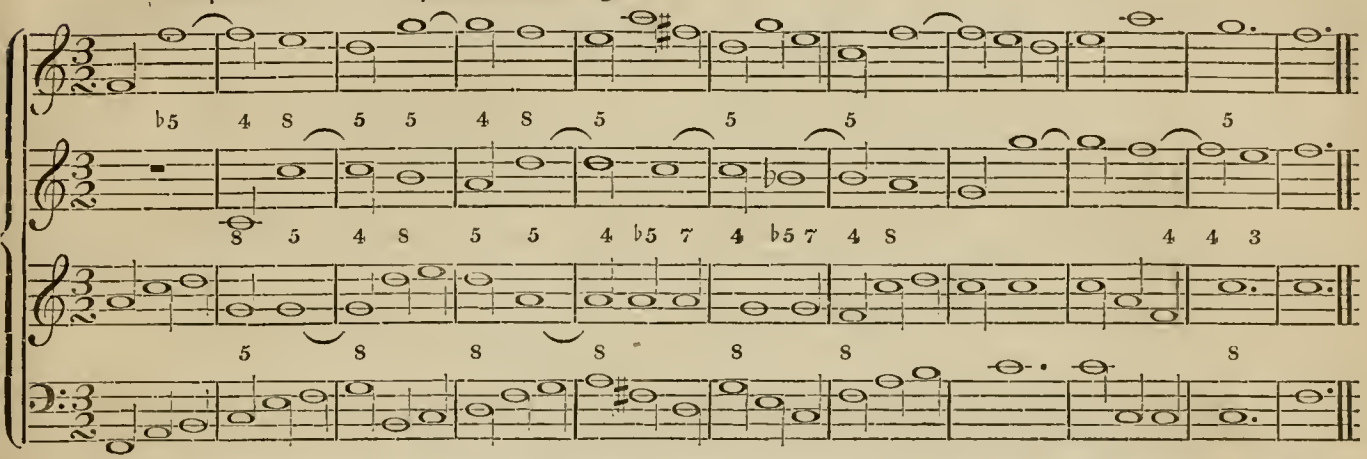
Besides the resolutions here given, the fourth may be resolved in the semidiapente, or false fifth, if the bass fall a third minor, and the discord descend a whole tone.



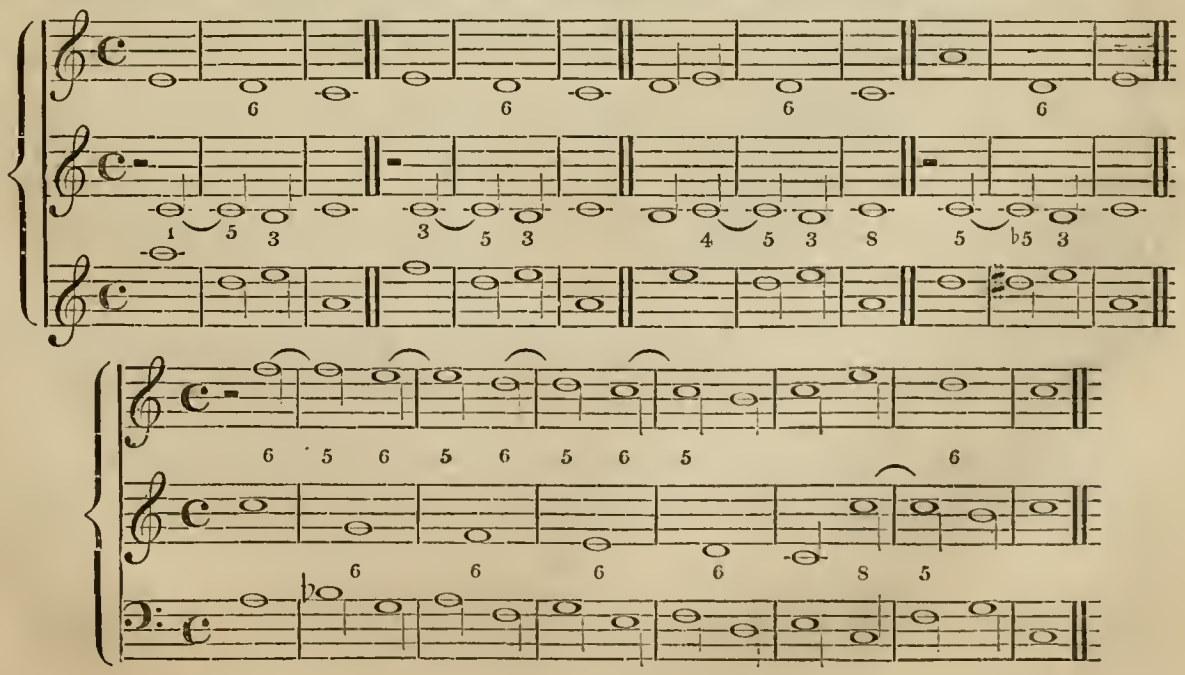
Music. It may also be resolved in the tritonus, or sharp fourth, if the bass descend a whole tone and the discord a semitone major; but these false relations must be thereafter resolved as will be shown. The fourth is useful in cadences where there are many parts. Music.



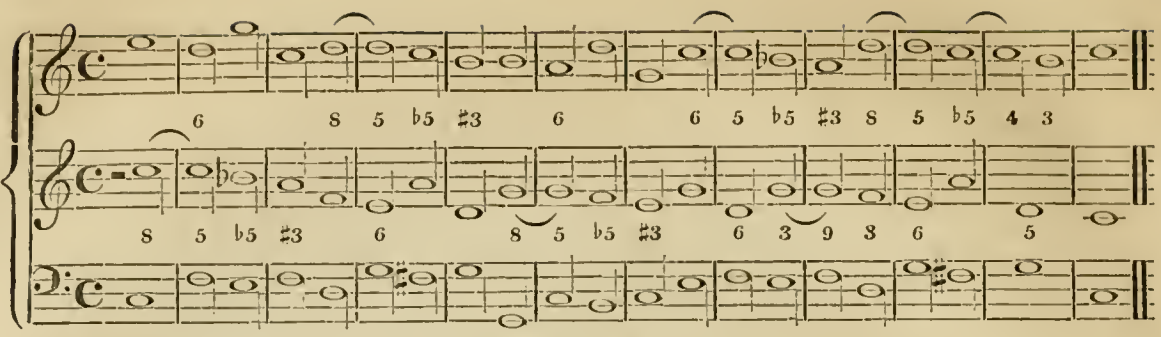
In four parts, the best accompaniment is the eighth.



When the sixth is taken and struck with the sixth it becomes a discord. Its preparations and resolutions are as follows. It is prepared in the eighth, sixth, and third, and resolved by the third and sixth, if the treble keeps on and the bass rises a fourth or falls a fifth, or the bass rises one degree, or the bass rises a sixth or falls a third. And, also, if the treble falls one degree and the bass rises one degree, or it rises a sixth or falls a third. Fifth as a discord.

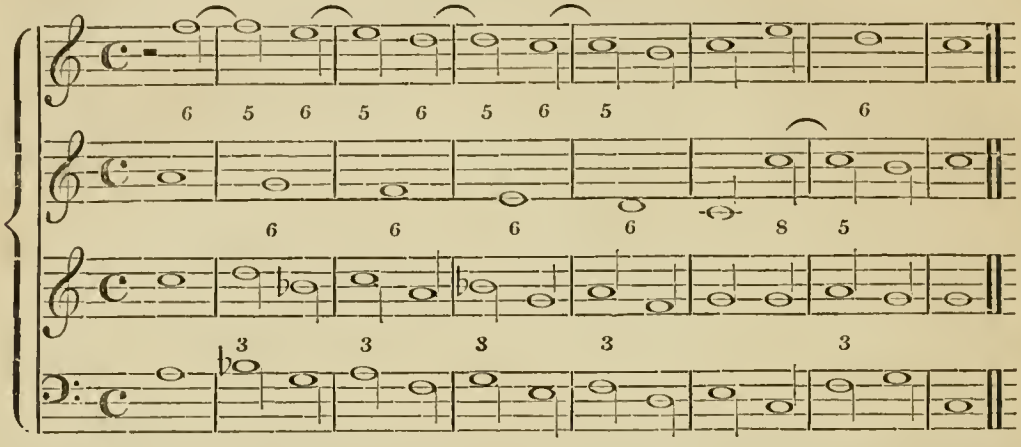


Music.



Music.

In four parts, it is best to accompany this fifth with a third, as under:



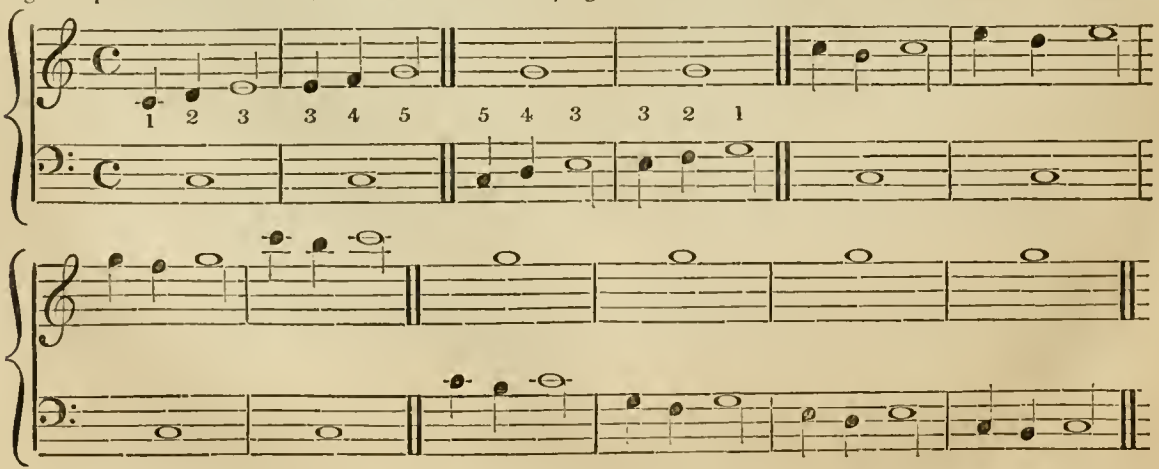
In closing our remarks on the artificial discords we think it proper to observe, that the natural resolution of the semidiapente, flat or defective fifth, is for the bass to rise one degree after it, and for the upper part to fall one, the parts thereby meeting in a major third.

The natural method of resolving the tritonus, or sharp fourth, is for the bass to fall one degree and for the upper part to rise one, whereby the parts meet in a minor sixth.

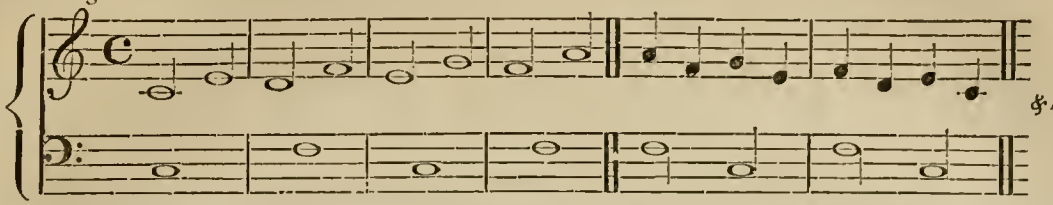
Discords by supposition.

In our remarks on discords we have hitherto confined ourselves to their mere preparation and resolution. But there is another way in which they may be and are constantly used without such regular preparation and resolution, though they are then no longer considered in the light of discords but *passing* or *transient notes*. They are, nevertheless, *discords;* that is the second and seventh, as also the fourth, if used in only two parts, but not so in three or four parts, for the fourth then is a perfect concord, unless made a discord by the fifth, as we have seen above.

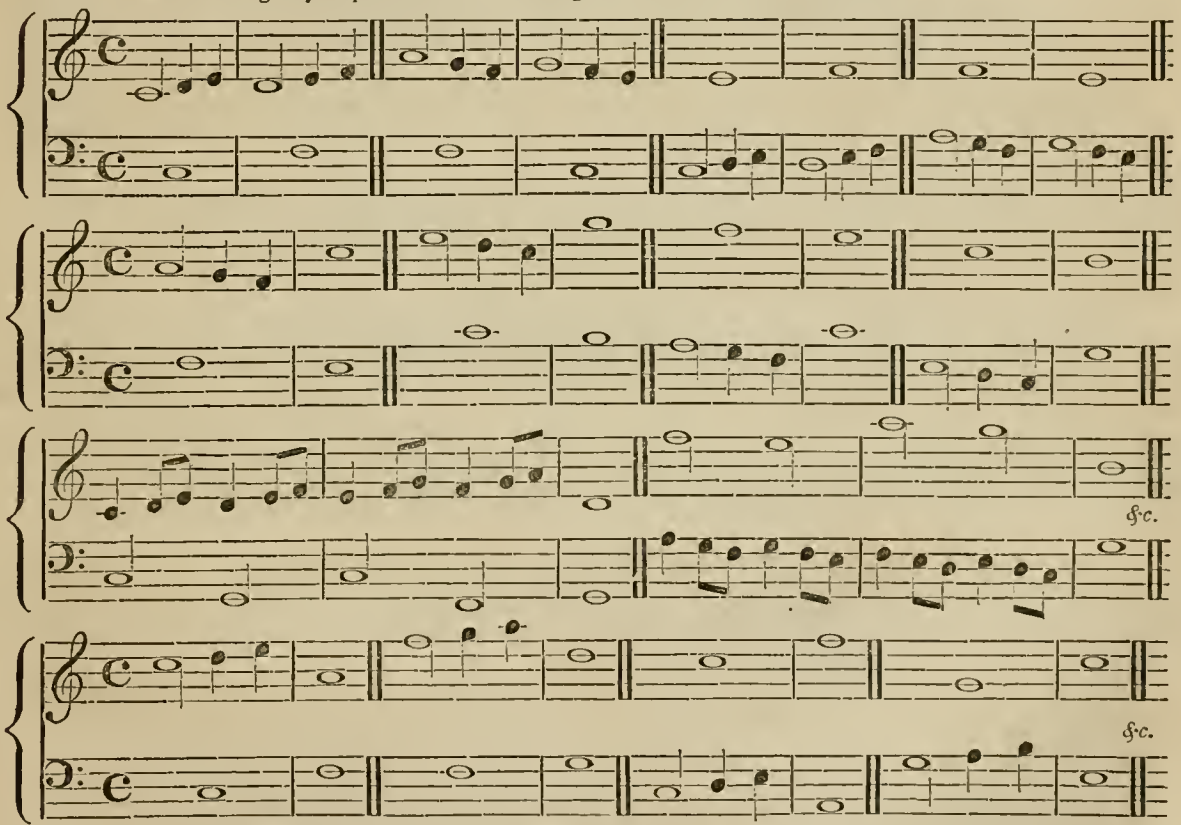
If we make use of the discords of the second, seventh, and fourth, and their replicates, or octaves in *divisions*, or diminutions as passing notes, it will be necessary to take care that the notes which fall on the accented parts of the bars be concords; but those in the unaccented parts may be discords if we take care to proceed to them by degrees upwards or downwards, and that thereafter our progress to a concord be upwards or downwards by degrees.



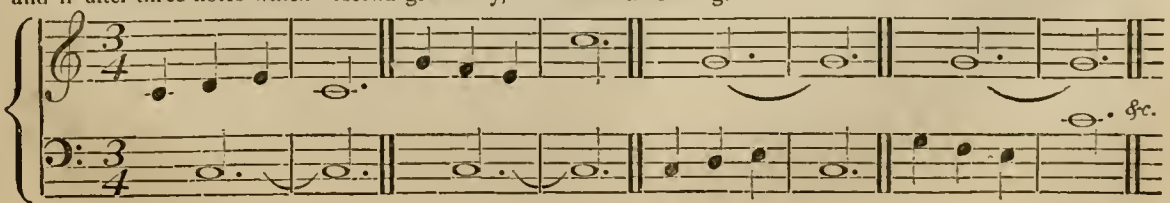
Music. The mode of division by which discords are used upon the second accented part of the bar is called *supposition*, inasmuch as the discord thus brought in is supposed a note higher or lower than it really is; that is, we may suppose it at the degree the concord goes to. It is usually written in the treble or the bass, when in the plain counterpoint there are two or more notes of equal value or length in a bar that proceeds by skips of thirds rising or falling. Music.



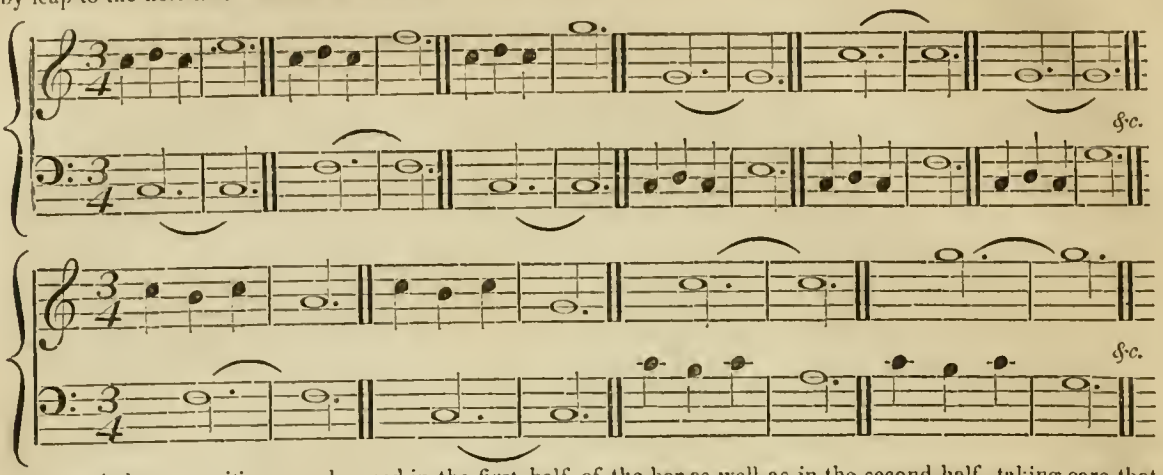
In skips of this nature only can discords be used on the accented part of the bar, that is, by breaking or dividing two notes that skip a third into three, the first note keeping its original length of two out of four parts of the bar, whilst the second note is divided into two of less length; by which method the first of the smaller divided notes is the discord, and will be on the third part of the bar, or second accented part; and the second or last divided note, which is the concord, will be on the fourth or last unaccented part of the bar. When the discord by supposition rises by degrees, or falls similarly to the concord, we can, if we proceed by a single degree, ascend or descend, as may suit us, to the note following the concord. If, however, the discord descend to the concord, and we wish to proceed by skip to the following note, it must be done by ascending to it; and if the discord ascend to the concord, we must, if we wish to go by leap to the note following the concord, descend thereafter



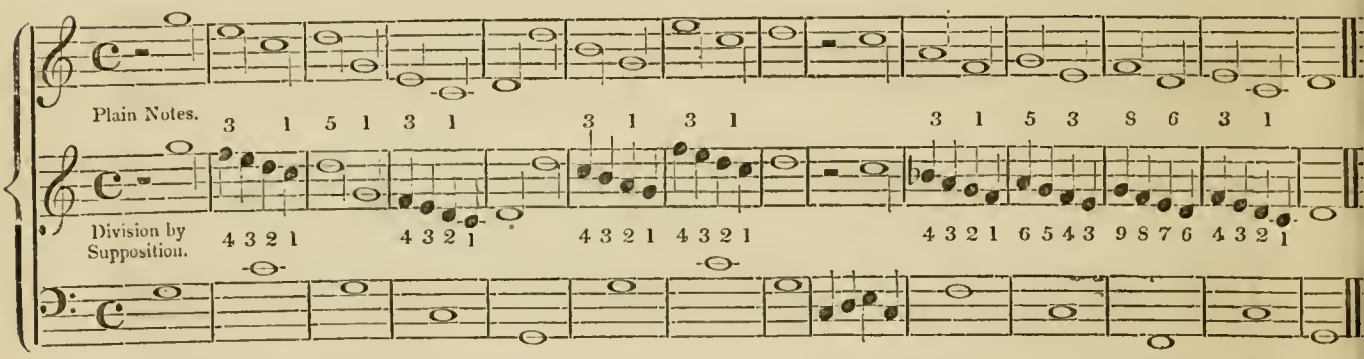
The student must recollect that no note can be the end or conclusion if a discord by supposition precede it, but that he must proceed one note further beyond it: if gradually, either upwards or downwards; if by a leap, it must be as already directed; that is, if a skip is made after three notes which ascend gradually, it must be descending, and if after three notes which descend gradually, it must be ascending.



Music. And here it is right to notice with respect to those divisions which touch a discord after a concord, and thereon immediately return to the concord that was struck before the discord, that if the discord ascend by a single degree from the concord, and then by falling a single degree return to it, we must then skip upwards if we wish to go by a leap to the note that follows the concord. If, however, the discord fall a single degree from its preceding concord, and then by rising a single degree return again to it, we must skip downward if we are desirous to go by leap to the note that follows the concord. Music.



Discords by supposition may be used in the first half of the bar as well as in the second half, taking care that if we use them in the first accented part of the bar, they must also be used in the second half, and only in descending. This method is used in basses that sing as a treble part, and is of importance in bass instrumental accompaniments.

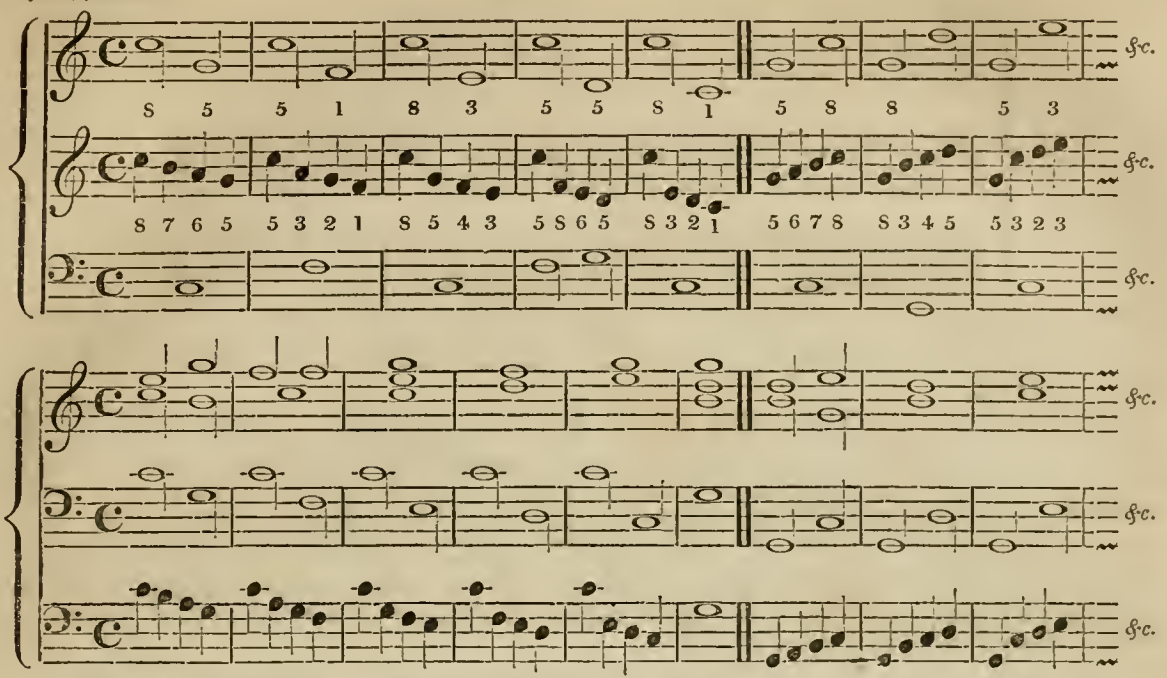


Thus if discords by supposition are employed on the first and second accented parts of the bar, it must be when the notes of the real or plain harmony skip by thirds, descending; in which case, in this division the two accented notes, which are the first and third in the bar, begin by supposition a degree higher than the real notes and are therefore discords, which afterwards descending a degree are followed by the concords on the unaccented parts of the bar, which are in reality the notes of the skip.

To illustrate this in numbers which will be sufficiently intelligible, suppose that the skip of the real sounds is from the third to the unison. Then, to bring in the discords by supposition as passing notes on the first and second accented parts of the bar, a note must be taken higher than the third, which gives a fourth for the first accented part, the third then follows on the first unaccented part; then taking a second, being one note higher than the unison on the second accented part, the unison itself follows after on the last unaccented part of the bar. Hence the skip of a third descending from the third to the unison, is fourth, third, second, unison by supposition. If from the fourth to the second, it must be fifth, fourth, third, second. From the fifth to the third, it makes sixth, fifth, fourth, and third. From the sixth to the fourth, we have seventh, sixth, fifth, and fourth. From the seventh to the fifth, it will be eighth, seventh, sixth, and fifth. And from the eighth to the sixth, we must place ninth, eighth, seventh, and sixth. It is hardly necessary to state that with the replicates or octaves the same arrangements must take place.

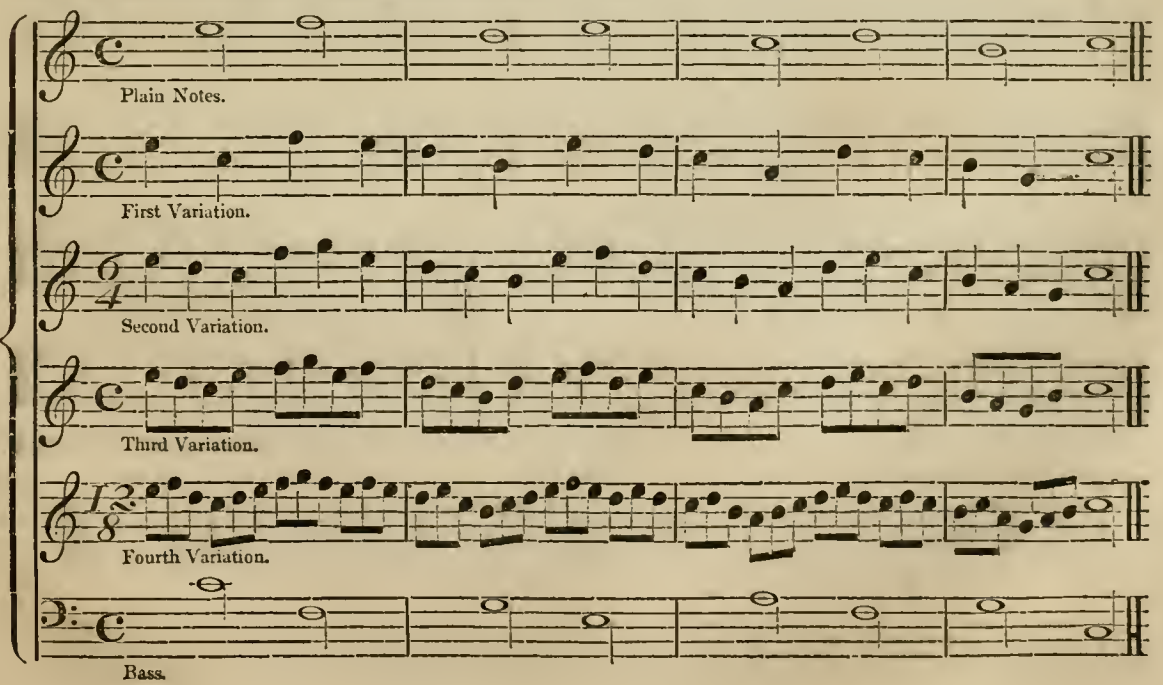
Though we have thus far only mentioned the rules for employing discords by supposition where the plain or real notes proceed by skips of thirds, it is evident from what has been said that discords by supposition may be equally used in skips that proceed by fourths, fifths, sixths, sevenths, eighths, &c., both ascending and descending; but in this case we can only bring them in on the second accented part of the bar, and that by the division of the two notes that define the skip into four notes, whereof the first must keep its place on the first accented part of the bar, the other three ending gradually on the last note of the skip, thus making as it were a divided third. In the example below, the first line contains the plain notes, and the second the treble by supposi-

Music. tion; and in the second appended example, the second line contains the plain bass notes, and the third the bass by supposition. Music.

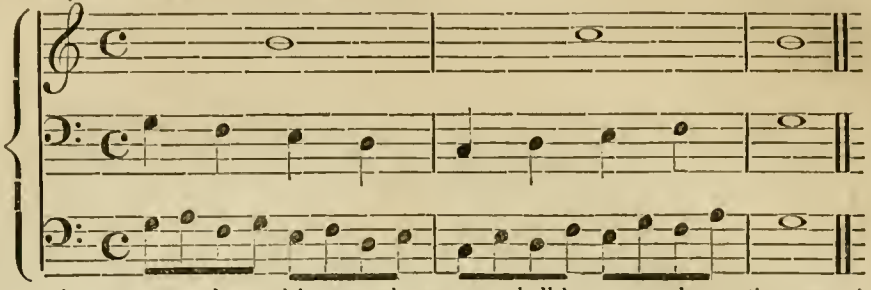


In explanation of the above, take the skip of the eighth descending to the third, which is a skip of a sixth, then by the rule we get eighth, fifth, fourth, third. Or if the skip of the sixth be ascending, as from the fifth to the tenth, we get fifth, eighth, ninth, and tenth. By these examples we see that the supposed discord is on the second accented part of the bar. Thus we may use discords by supposition in any given leaps; they are, however, as will immediately occur to the reader, suited to instrumental and not to vocal music. But we have said enough to give an insight into that kind of division which is called supposition.

Variation is the subdivision of a division. It is effected by dividing a note or sound into two, three, or more notes, so that that note is always retained upon which the variation is made, making it the first note of the division, and then proceeding to make two, three, or more notes upon it without changing the air, that is, the melody or harmony of the note upon which the variation is made. Variation.

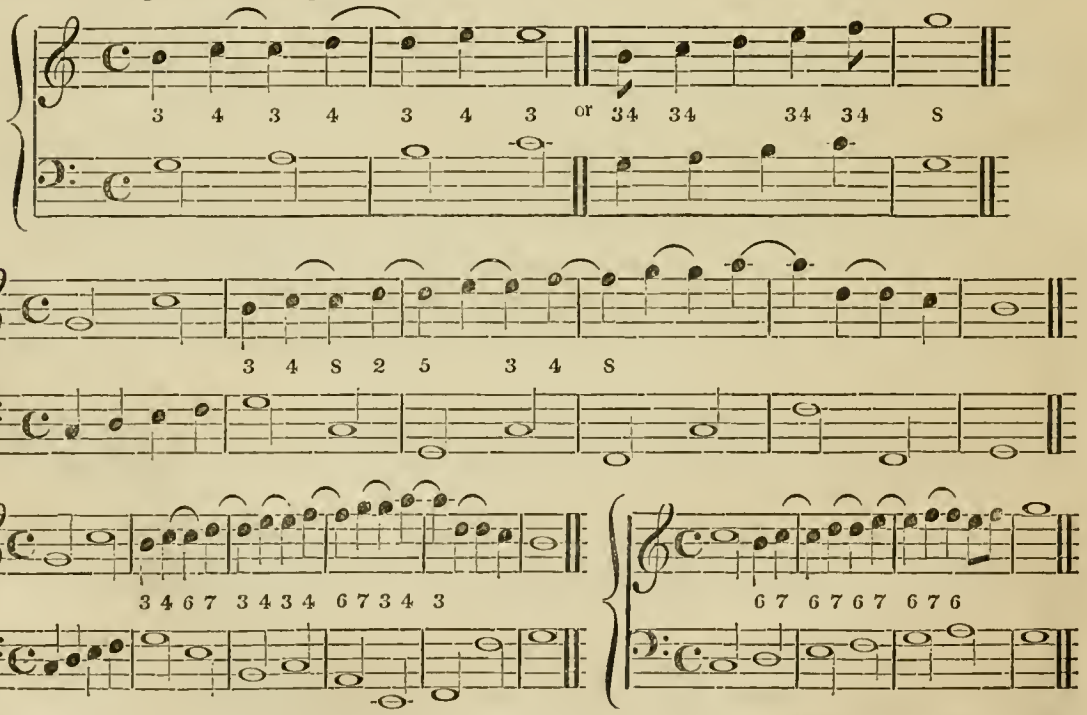


Music. Variation may take place either in the bass or treble, but it should not be carried to excess in the bass, especially in vocal Music; and the ear, moreover, does not so well distinguish and separate quick progressions in low tones. We subjoin an example of variation in the bass. Music.

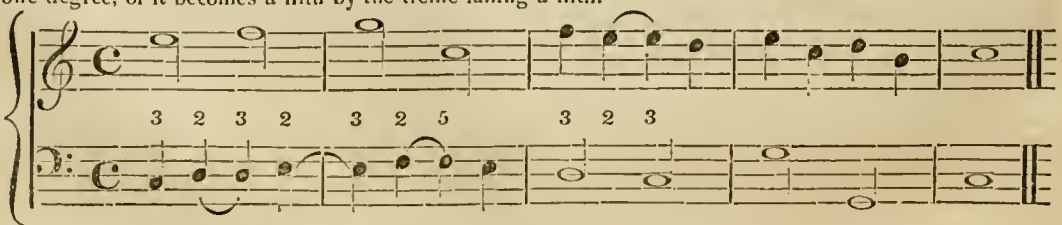


Discords, as passing notes, may be used in several ways; we shall however only mention two others in addition to those already given, one of which is called *anticipation* and the other *postposition*, but they are both more commonly known by the name of *driving notes*. They may be used both ascending and descending, and in the treble as well as the bass.

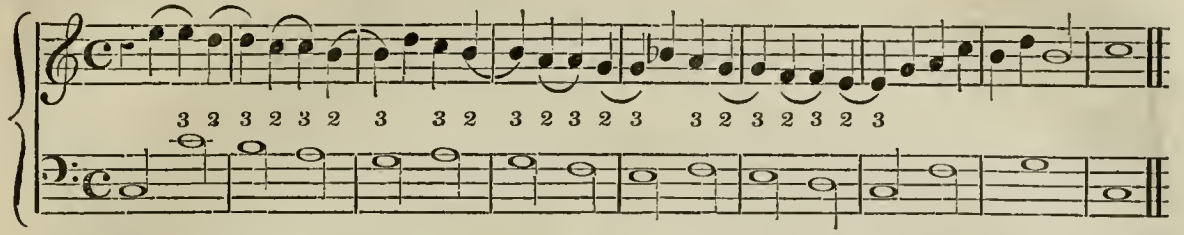
Anticipation. If a note be brought upon the unaccented part of a bar in such a manner that it has not yet obtained its right harmony, but by keeping on it will acquire it upon the succeeding accented part of the bar, the other note moving to give it the harmony, it is called *anticipation*. It is used in ascending as well as descending, and as we have observed, in either part. In ascending, rising takes place when the part anticipating rises one degree to make a discord in the unaccented part of the bar, the note keeping on becomes a concord in the next accented part by the motion of the other part. Hence if the treble anticipates a fourth on the unaccented part, the fourth becomes a third on the succeeding accented part of the bar if the bass ascend a degree, or an eighth, if the bass descend a fifth, and a sixth if the bass descend a third. So when the treble anticipates a seventh it becomes a sixth if the bass ascend one degree, or a third if the bass fall a fourth. When the treble anticipates a second, it becomes a fifth by the bass rising a fifth or falling a fourth.



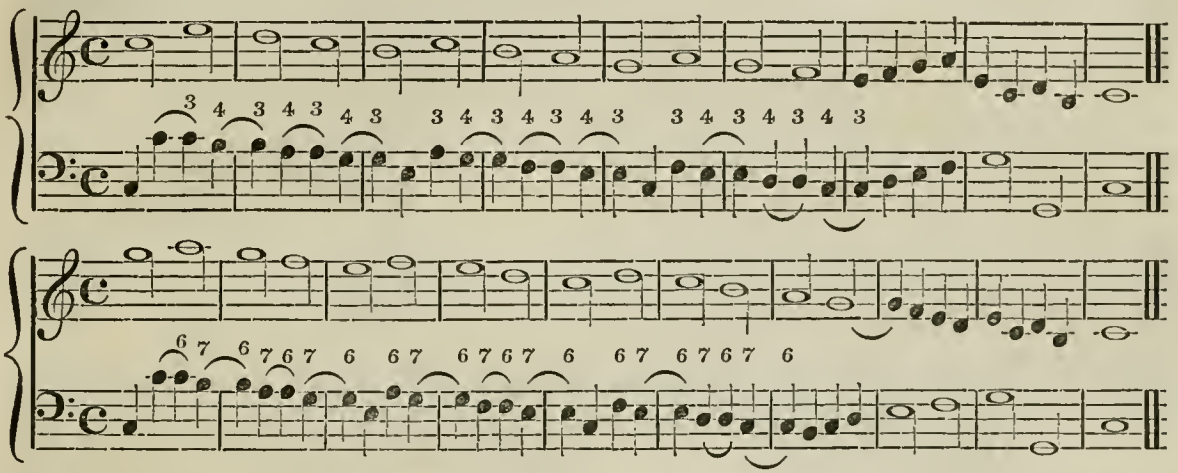
When the bass anticipates in ascending to a second, the second keeping on becomes a third by the treble ascending one degree, or it becomes a fifth by the treble falling a fifth.



Music. When anticipation is used in descent, the part which anticipates falls one degree to a discord in an unaccented part of a bar, and that holding on becomes a concord in the succeeding accented part by the other part moving. Thus, suppose the upper part to anticipate, by descent, one degree to a second, that second becomes a third by the bass descending one degree, or a unison by the ascent of the bass one degree. Music.

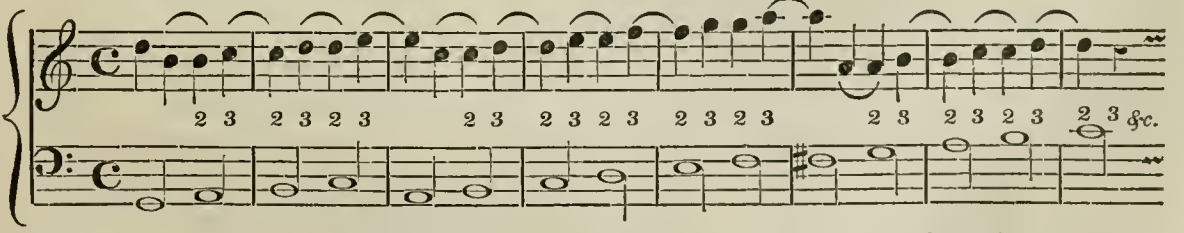


If by descent one degree the bass anticipates to a fourth, the fourth becomes a third by the treble falling one degree. If by descending one degree to a seventh the bass anticipate, the seventh becomes a sixth by the descent of the treble one degree.

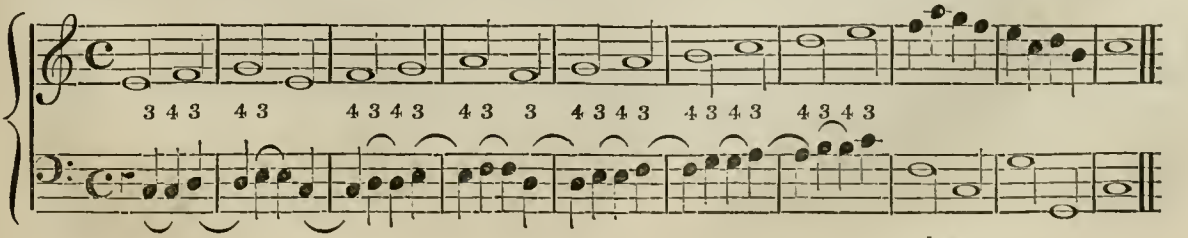


Though there he many other ways in which anticipation may be effected, both ascending and descending, we do not think it necessary to give any more examples. The student by practice on the discords cannot fail of finding them out and using them, if what has been premised be well understood.

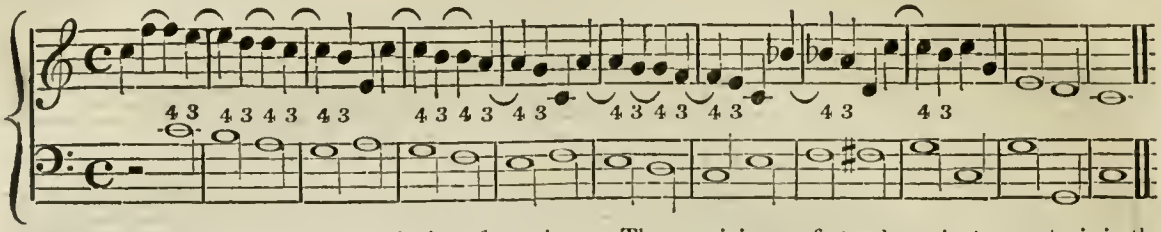
If we place a discord on the accented part of the bar, and it be followed by a concord on the next accented part, such position of the discord, without that preparation and resolution which the laws of harmony require, is called *postposition* or *retardation* of the harmony. It is effected in the upper part when a discord taken on the accented part becomes a concord on the succeeding unaccented part by rising one degree, the note in the bass keeping on. A second thus becomes a third. Postposition.



It takes place in the bass when that having a third on it in the unaccented part of the bar and holding on the treble has a fourth as a discord upon it in the following accented part of the bar, which, by the ascent of the bass one degree whilst the treble keeps on, afterwards becomes a third.

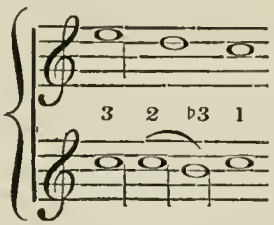


Music. In descending, *postposition* takes place when the discord on the accented part of the bar is made a concord on the following unaccented part, the bass holding on and the treble descending one degree. Thus a fourth becomes a third. Music.



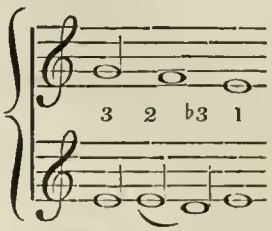
Cadences. A cadence may be defined as the conclusion of a strain, or of the parts of it in places of the composition dividing it as it were into so many clauses or periods. It is in short, as the term expresses, the fall or conclusion of a series of harmony which the ear seems naturally to expect as its termination.

There are two sorts of cadences *perfect* or *final*, and *imperfect* or *middle*. To make the former three different modes may be adopted. We shall commence by examples in two parts only, in which the cadences should always end in the unison. It is effected by a minor third in the penultimate note, which afterwards falls a whole tone or semitone major to the unison, the last note of the cadence. If it descend a whole tone, it is necessary that the under part should rise a semitone major to meet it in the unison. But when the minor third in the upper part falls only a major semitone-major to the cadence note, the bass rises a whole tone to meet it in the unison. The semitone major may be natural or accidental by means of a sharp or flat. The following is a cadence in two parts in the key of C in the unison.



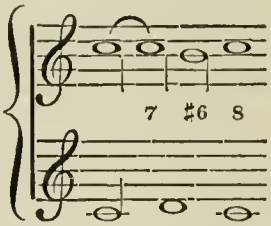
Here the second, which is a prepared discord, appears upon the antepenultimate note, and is resolved by a minor third upon the last note but one, upon which the upper part falls a whole tone, the bass at the same time ascending a semitone major, whereby the cadence is completed.

The next example is in the unison on E,

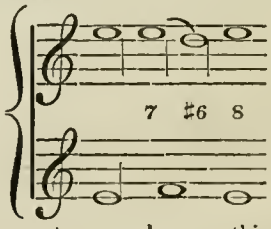


in which the difference between it and the preceding example arises from the upper part descending a semitone major, while the lower part ascends a whole tone to the unison. This turning the cadence in E differs, moreover, from that of the other keys, inasmuch as the whole tone takes the place of the semitone, and the semitone that of the whole tone in the others.

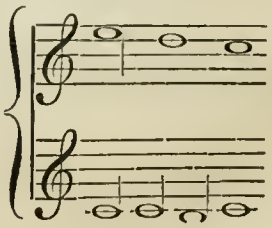
The remaining perfect cadence in two parts, is in the octave or eighth, and is best by contrary motion and as gradual as may be. In this the penultimate must be a major sixth, namely, the note in the upper part which ascends to the final or cadence note by a whole tone or semitone major. When the upper part rises a whole tone, the bass descends a semitone major. If, however, it ascends a semitone major, the bass descends a full tone, in order that the two parts may close the cadence in the eighth. Thus,



There are, however, two ways of making a cadence on the eighth, whereof that which is above given is the best if two parts only be employed. The example shows that the seventh here, after preparation, is struck on the antepenultimate and resolved into a major sixth in the following note, upon which the upper part rises a major semitone, the bass descending a whole tone, which leaves the parts an octave apart and closes the cadence. The next example of the cadence is on the eighth in E in two parts, and as follows:

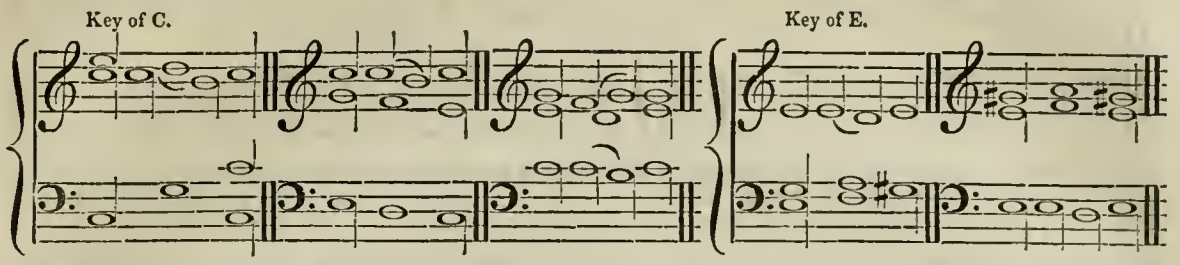


It is only necessary to remark upon this cadence as on that in the unison, that it is in the key of E, and we have a semitone where the other keys have a whole tone, and the whole tone where they have a semitone. The remaining method of taking the cadence on the eighth, which in truth is similar to the cadence in the unison, is as follows:



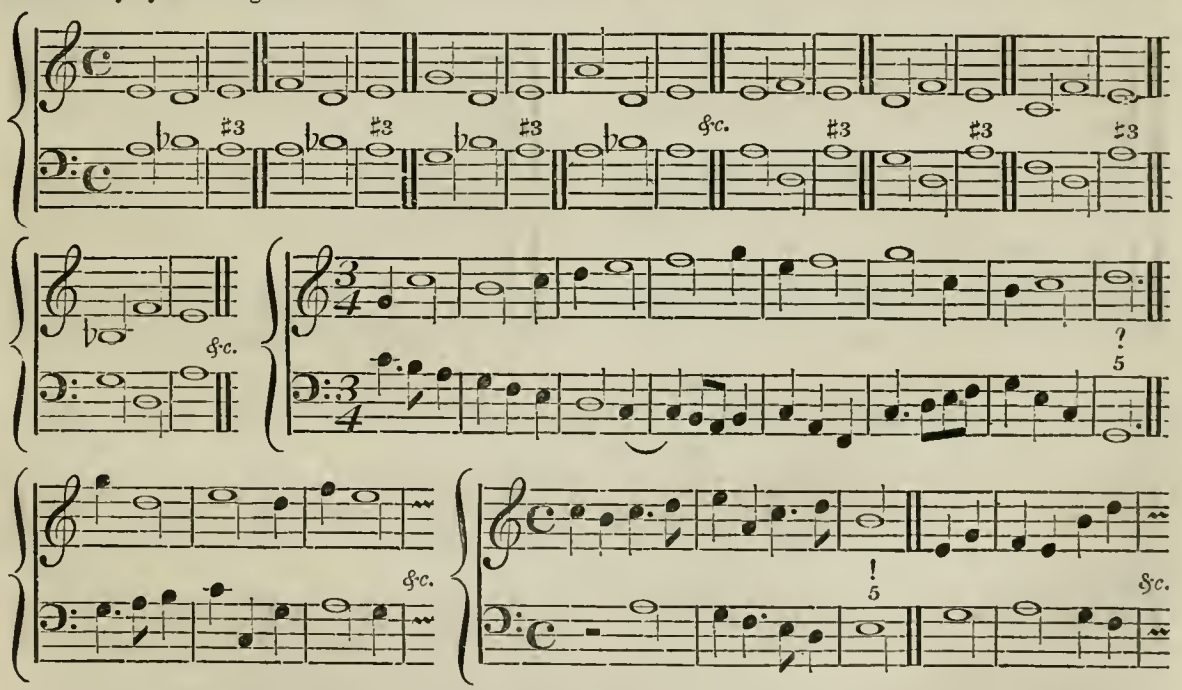
Music. in which, comparing it with that cadence, it differs only in the parts being a tenth instead of a third apart. Music.

We now subjoin three cadences in C and two in E, in which they are exhibited with the best harmony on the last note of the cadence.

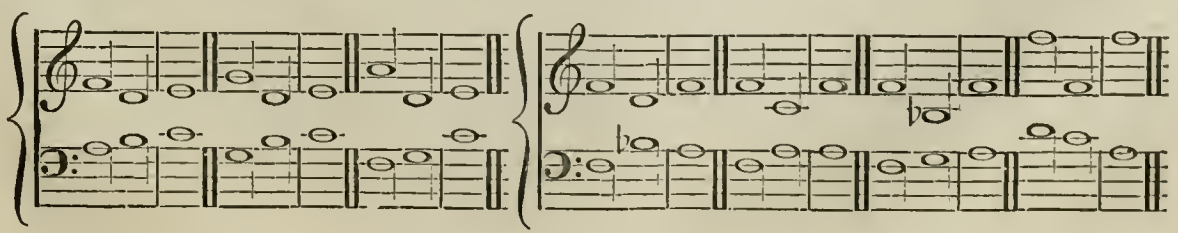


The mode of making these in four parts and accompanying the discords in them, has been already laid down. The first of the above cadences is sometimes called the grand cadence. It closes in the unison or eighth, and differs from the other, inasmuch as the last note but one must be a major third, which then rises a major semitone, whilst the bass falls a fifth or rises a fourth to the cadence note. If the bass rise a fourth, it is a cadence in the unison, if it fall a fifth, it is a cadence on the eighth. It should not be used in two parts because of the skip to the last note in the bass, which is better where there are more parts. These cadences in the unison and the eighth seeming to answer to the full stop in writing, appear thence to have acquired the name of final cadences.

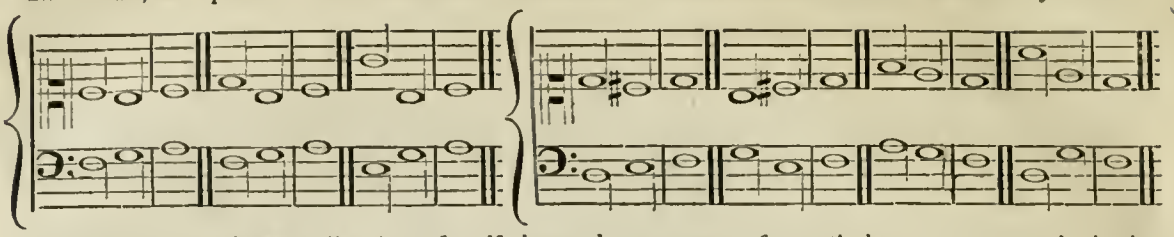
The imperfect, or middle cadences, are so called from their being used in the middle of a strain where it is not the composer's intention to close it finally. The fullest of them is on the fifth, seeming to answer not only to the colon and semicolon in writing, but also to notes of admiration and interrogation; when seeming to denote the latter, the upper part rises to the cadence note, which is a fifth. A melancholy expression is produced by its rising, and the contrary by its falling to the cadence.



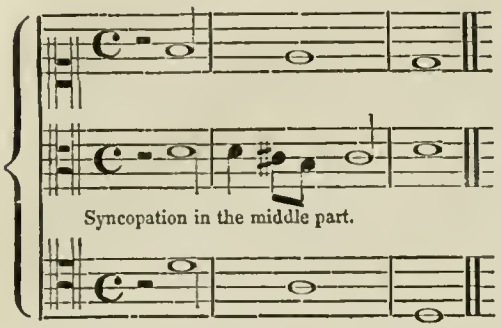
The next in order as to excellence are middle cadences in the major third or minor sixth; they are a species of weaker interrogation when the upper part rises to the cadence. They both rise and fall to the last note of the cadence.

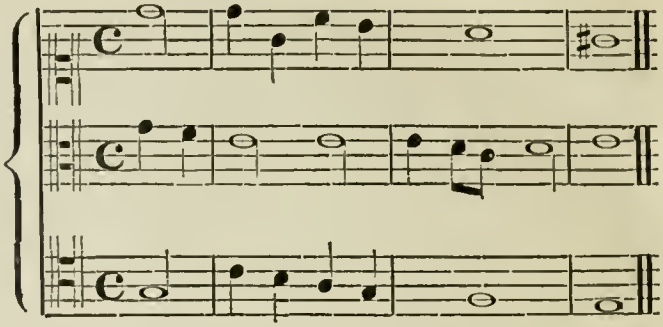


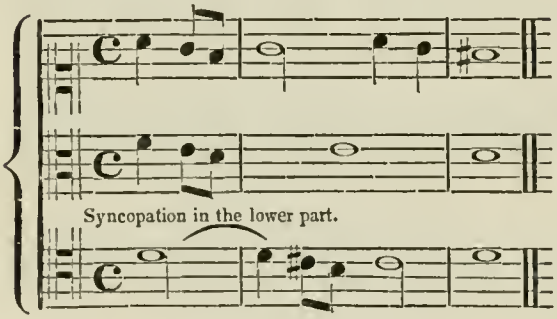
Music. The middle, or imperfect cadences, which are considered the worst, are those in a minor third or major sixth. Music.

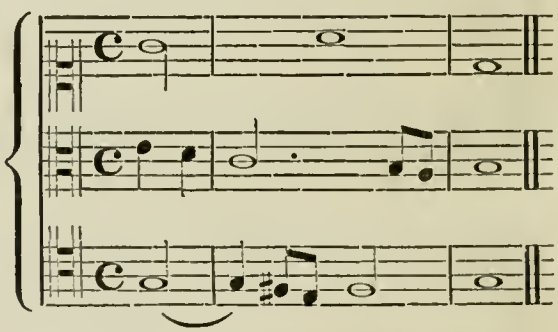


In all cadences, perfect as well as imperfect, if the words or sequence of a particular movement require it, they may be divided and subdivided in the part occupying the syncopation or ligature of the cadence, which may take place in any part of the composition, as may be seen by the examples.

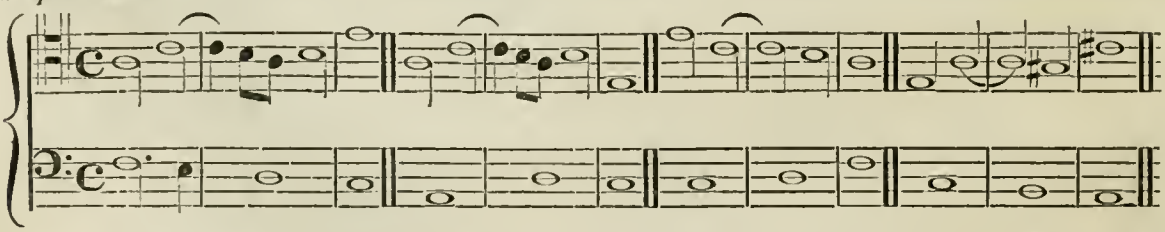








A cadence is *avoided* when, after having prepared and resolved the discords preceding it, we go to some other note than that on which it ought to conclude and thus break it off, and it is then called the *flying*, *avoiding*, or *deceptive cadence.*



The reader, we presume, will be able, from what has been already given, to form examples for his own study; we shall therefore leave this part of the subject to proceed to the following important section.

Modulation. When in the course of a melody the key note is changed and the original scale altered by the introduction of either a sharp or a flat, such change is called *modulation.* More properly speaking, it is the method of keeping in and using the principal key; but it is more generally received in the sense of the definition we have given. As the key is the result of harmony, from that harmony also arise the laws of modulation. These are simple enough in their nature, but difficult to follow. They are, if you desire to keep in the key, first, to use all the different sounds of the scale as much as possible, uniting them in a good melody, and dwelling principally on those which carry the essential chords. Or in other words, the chords of seventh and key notes will be frequently wanted, but in different forms and by varied methods in order to avoid a monotonous effect. Secondly. To take cadences or pauses on these two chords only, or at furthest on that of the fourth of the key. Thirdly. Never to alter the scale, because if a sharp or flat is introduced which does not originally belong to it, or one is taken from it, the key is then quitted.

In order to pass from one key to another, it is necessary to consider the analogy or relation between the two

Music. keys, and the chords common to both. Leaving first, for instance, a major key, whether we consider the fifth and key note as having the simplest relations to each other after the octave, or whether we consider it as the first among those sounds that are heard in the vibration of strings when struck, we shall always find that the fifth is the chord upon which a modulation most relative to the key note may be fixed. This fifth, which was a component part of the perfect chord of the first key note, is also to be found in its own chord, of which indeed it is the fundamental. Moreover, carrying besides the key note a perfect chord major, the two differ only by the discord, which from the key note passing to the fifth is the added sixth, and from the dominant repassing to the key note is the seventh. But these two chords marked by the discord which belongs to each will make of the sounds whereof they are composed, if ranged in order, the octave or diatonic scale which determines the key. This scale of the key, if marked with a single sharp, forms also the scale of the fifth of the key; thus showing the analogy existing between the two keys, and affording the facility of passing from one key to another by a single alteration. The fifth of the key is therefore, after the key itself, the first in the order of modulation. The same simple relation that exists between the key itself and the fifth of that key, exists also between the key note and the fourth above or fifth below the key, for the fifth which the one makes above the key note the other makes below it; and this takes place by inversion only, inasmuch as it becomes the fourth again by placing the key note below it; hence the gradation of these affinities, for in this sense the fourth, whose ratio is 3 : 4, immediately follows the fifth, whose ratio is 2 : 3. Now, though the note of the fourth does not enter into the perfect chord of the key note, the key note enters into the perfect chord of the fourth; for taking the key of C, its perfect chord will be C E G, and that of its fourth would be F A C. Thus the C in both makes the affinity or relation between them, and the two other notes of this new chord are precisely the two sounds in the case of the fifth above mentioned. Neither is it necessary to alter the notes of this new key, except that of the fifth first mentioned, they are with one exception the same in both, for by only adding a flat to the B the notes in the key of C will serve for that of F. Thus the fourth has as strong an affinity to the key note and its perfect chord, as the fifth itself. And we may here further remark, that after having used the first modulation, in order to go from the principal key to that of the fifth, we are obliged to employ the second to get back to the principal key; for as G is the fifth of C, so is C the fourth of the key of G. So that the modulations are dependent naturally on each other. The third note, which is formed in the perfect chord of the key note, is that of the third, and after those named it is in the simplest ratio, thus, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$. Here, then, a new modulation presents itself to us, and so much the more allied to it from two of the notes of the chord of the key being also found in the chord of E, with the minor third for that of C, is C E G, and that of E, is E G B, in which we have E and G common to both. This transition appears, however, somewhat more irrelative; from the number of notes it becomes necessary to alter even in the key of E minor, which is in the nearer alliance with it; for though in descending there be only the F to sharpen, yet in ascending there are two other notes affected, namely, the C and the D, which is the seventh of the key. Thus the relation is considerably lessened by the alteration of so many notes. Music.

If we invert the third as we just now did with the fifth, and take it a third below the key note, which is the same as the sixth A, we thereon obtain a modulation bearing a much stronger analogy to the key itself than that of E; for the perfect chord of this sixth being A C E, we find in it, as in the chord of the third, two notes which belong also to the perfect chord of the key note, namely, C and E, and the scale moreover of this new key being, at least in descending, exactly the same as in the key of C, the principal key, and it being necessary to alter two notes only in ascending, it follows that a modulation into the sixth of the key is preferable to one into the third of the key; and the more so as the principal key note enters into the perfect chord of the key which seems to suit better to the principles of modulation. After it the key of E may follow.

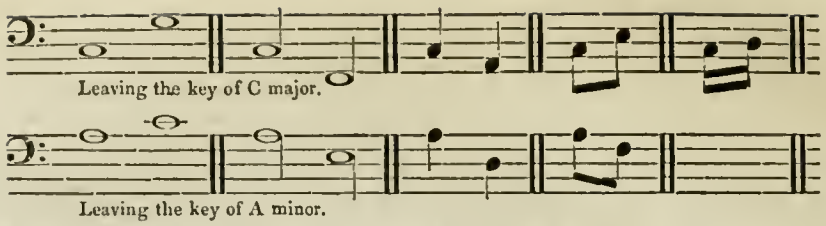
Thus then we have four keys, E, F, G, and A, into each of which we may modulate in leaving the major key of C. There remain those of D and B, the two harmonies of the fifth. This last is the sharp seventh, and cannot, at least at once, become a new key by good modulation, its harmony being so far removed from the principal key. But in respect to the other note D, one may by the progression of a fundamental bass modulate to its minor key, but it should not be dwelt upon more than an instant or we lose all impression of the key of C, which itself thus becomes altered; or if we do not immediately return to the key of C we must pass to it by other means, in which the student would be likely to fall into confusion.

Pursuing this analogy, the following will be the order in leaving a minor tone. The third first, then the fifth, thirdly the fourth, and lastly the sixth. The key of each of these accessory tones is determined by its third taken in the scale of the principal key. Thus, leaving the major key of C to modulate upon its third, the third of that key is a minor one, because the fifth G of the principal so makes it. On the contrary, leaving the key of A we modulate on its third C as in a major key, because the fifth E of the tone we have left has the major third upon the key note of that on which we enter.

These general rules may be included in the following maxim,—That the keys of the fifth and fourth of the key are similar to that of the key itself, and that the third and sixth are of different nature, that is, bearing minor thirds. It is, however, to be remembered that we may go in the same key from the major to the minor mode and the converse, and that we may change the order from one key to another; but in thus departing from the natural modulation we ought always to bear in mind how we are to get back, inasmuch as it is a general rule that a piece of Music should finish in the same key.

In the following formula, under two examples will be seen all the keys into which we may pass from the principal key; the first gives the method in leaving the major mode, the second that of leaving the minor mode, each note showing the modulation, and the relative lengths of the notes in each example indicate the relative suitable time for continuing in them according to their relation to the principal key.

Music.



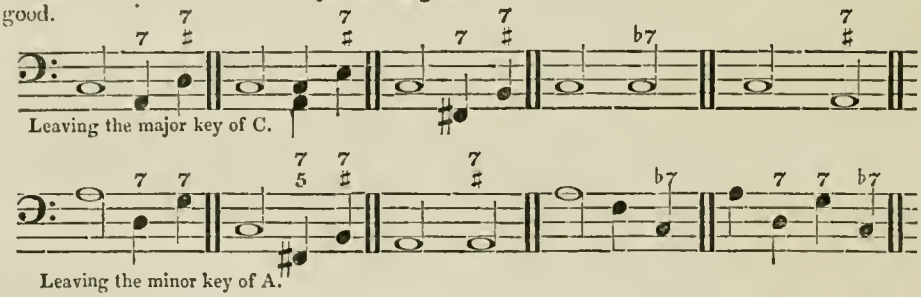
Music.

These immediate modulations show the method of passing by following up the rules into the most distant keys, and of returning to the principal key of which we are never to lose sight. But it will not be sufficient to know the routes we are to take without knowing the way to their entrance.

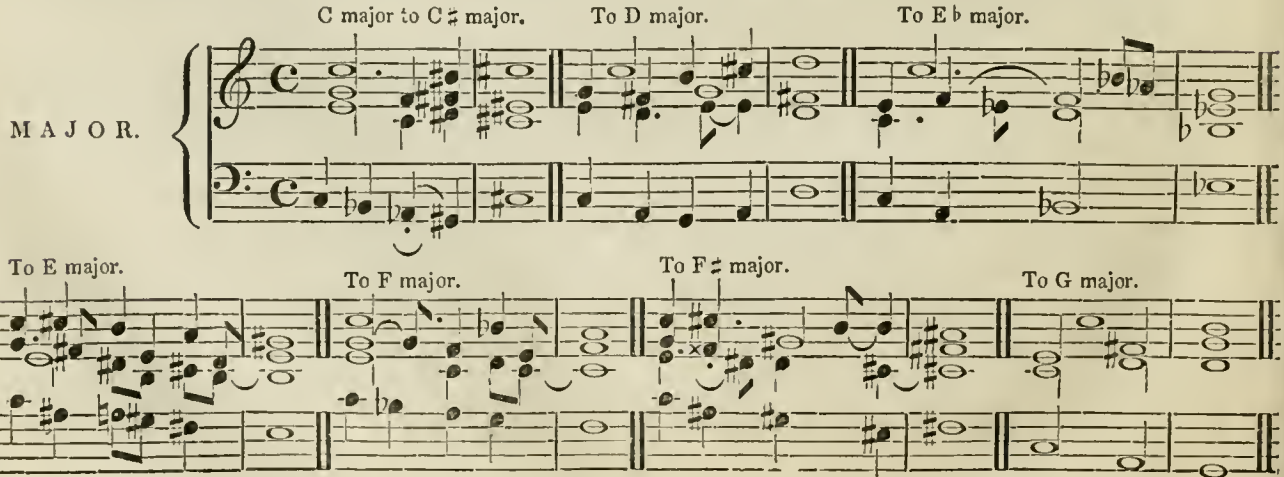
On this head we shall give a summary of the precepts. In a given melody, in order to introduce the modulation desired, it is only necessary to hear the alterations it causes in the notes of the key left to suit them to that whereto we proceed. Suppose we are in C major, it is only necessary to strike an F sharp to indicate the key of the fifth, or a B flat to indicate that of the fourth. Then go over the essential chord of the key into which you have entered, which, if well selected, will give your modulation a regular and pleasing effect. In harmony there is considerably more difficulty, for as it is necessary that the change of the key should appear in all the parts at the same moment, we must keep our eyes on the melody and harmony conjointly in order to avoid two different modulations. Huyghens has remarked, that the disallowance of consecutive fifths in harmony is founded on this principle. In truth, one can scarcely, in two parts, introduce consecutive fifths without finding that he has been modulating in two different keys.

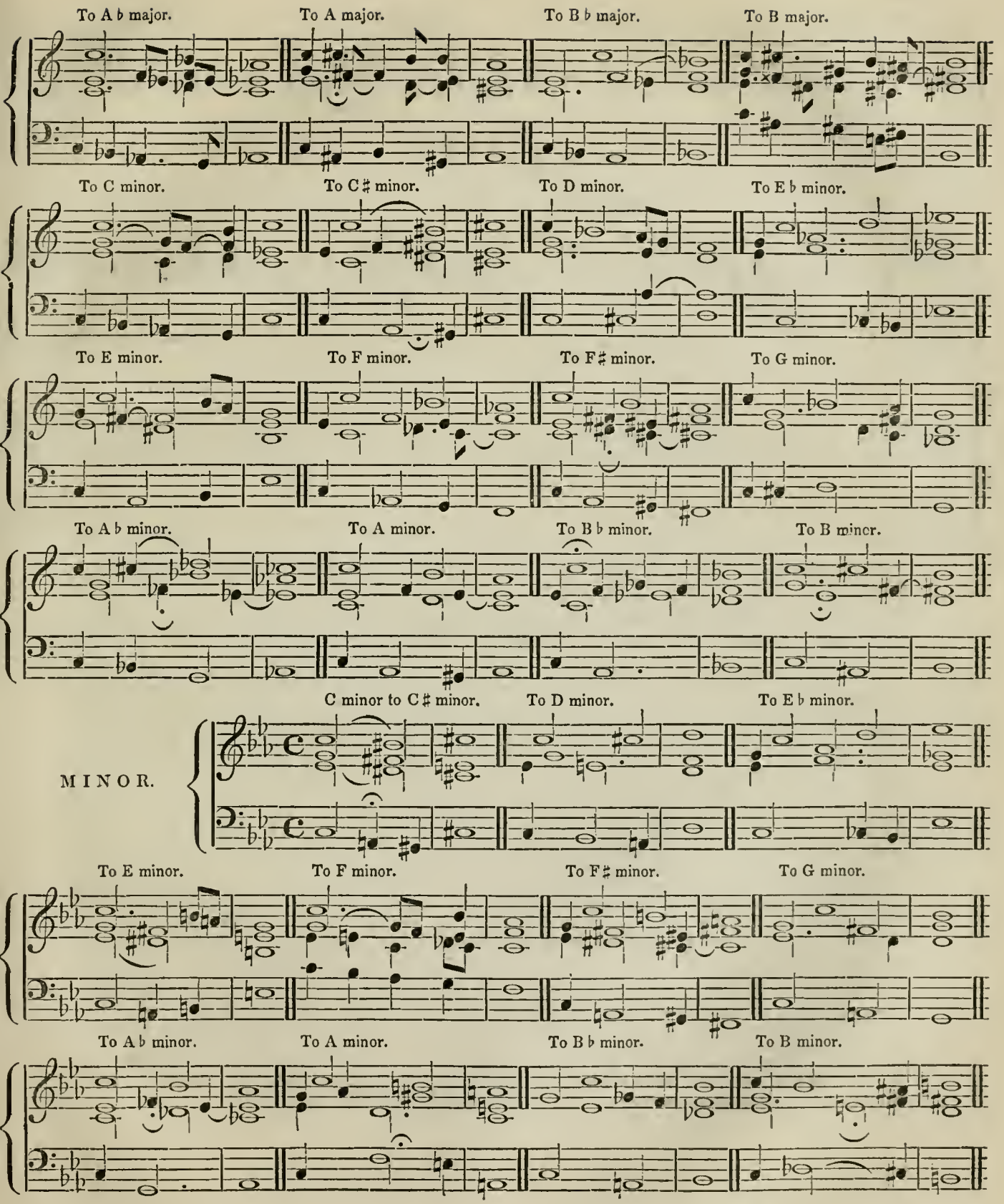
To introduce a key there are many who say it is sufficient to give the perfect chord of that key, and that it is indispensable to it; but it is clear that the key can only be determined by the sharp seventh or the fifth, which must be heard in proceeding to the new modulation. A good rule seems to be that the seventh should always be prepared in it, at all events the first time it is heard; but in all the allowable modulations this rule is not always practicable, and we always shall find the modulation good if the fundamental bass proceeds by consonant intervals, if we keep that harmonic tie which in a chord preserves one or more of the notes used in that preceding, if we regard the analogy or relation between the keys, and if we avoid false relations. Composers, moreover, lay it down as a rule not to change the key, except after a perfect cadence, but this is rarely attended to.

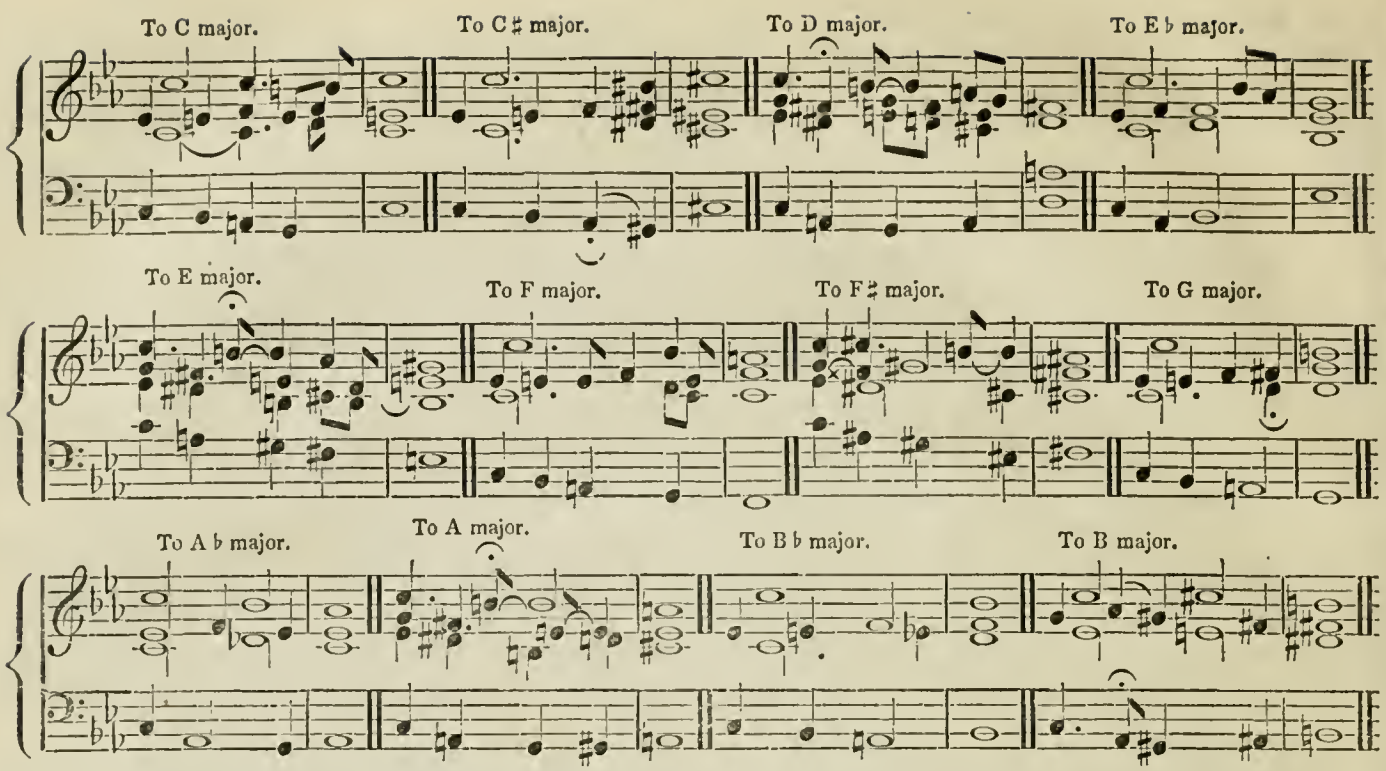
All the methods of passing from one key to another, are five for the major and four for the minor keys: if any other be used than is indicated in the subjoined diagram, unless it be an enharmonic modulation it cannot be considered good.



We shall close this section by presenting to our readers a Table showing the mode in which a modulation from the keys of C major and C minor may be taken to every other key in the scale, which by transposition may be made available in proceeding from any keys whatever to any other sought, and in four parts.




To A ♭ major.
To A major.
To B ♭ major.
To B major.
To C minor.
To C ♯ minor.
To D minor.
To E ♭ minor.
To E minor.
To F minor.
To F ♯ minor.
To G minor.
To A ♭ minor.
To A minor.
To B ♭ minor.
To B minor.
MINOR.
C minor to C ♯ minor.
To D minor.
To E ♭ minor.
To E minor.
To F minor.
To F ♯ minor.
To G minor.
To A ♭ minor.
To A minor.
To B ♭ minor.
To B minor.



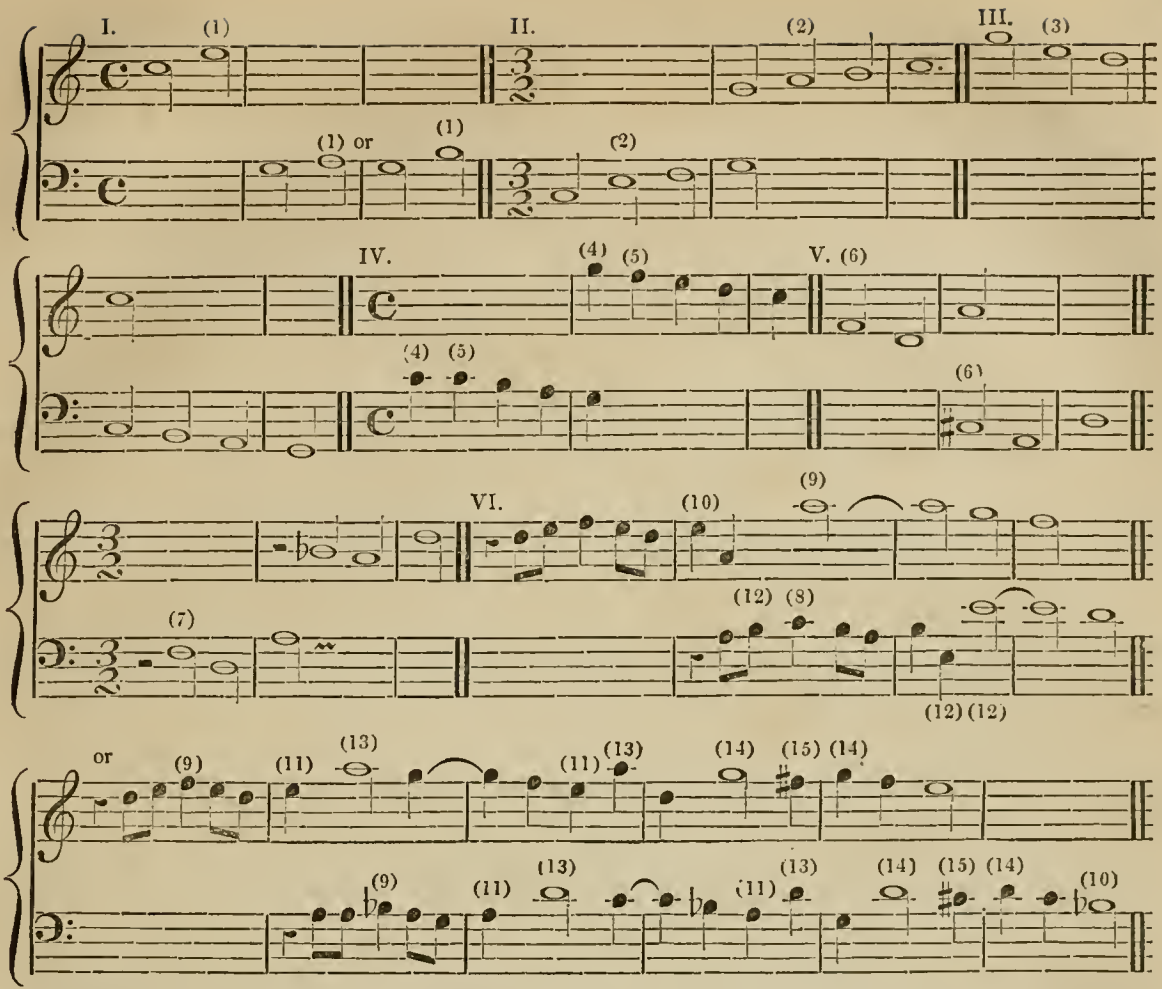
By the transposition of the above Table into all the different keys it is clear that we shall obtain its converse; those, however, who wish to save themselves that labour may consult the authority we have above used, namely, *The Art of Musical Modulation digested in twelve Tables*, by Philip Joseph Frick; who at one period of his life was organist at the Court of the Margrave of Baden, and died in England in 1798, having been also author of a *Treatise on Thorough Bass*, published in 1786, which it has not been our good fortune to have seen.

Fugues, canons, and imitations.

Fugue, as well as imitation, consists in a certain repetition of the melody in the different parts or their following each other at intervals of time, each repeating what the first had performed according to certain rules. The part which leads is called the *guide*, and that which repeats it the *answer*. The latter always proceeding by the same species of intervals, or in other words, the relative situations of the tones and semitones standing in the same order in one part as they do in the other. Of imitation, as it requires no particular skill, we shall merely observe that it consists in a certain continuance of the melody in any of the parts repeated at pleasure, and without very great regularity; and that it is only in the repetition of this melody that it resembles fugue.

In writing fugues the following are the principal rules to be attended to: First. The key note and its fifth for the first and last notes of the fugue are preferable to any other, especially if you are not thoroughly master of the mode of proceeding with them. The melody in this case is to be contained within the octave to the key. If it exceed those bounds, such as are above or below the octave are deemed the same as those within the octave. Secondly. If one part begin or end with the key note, the other begins and ends by the fifth, and so of every other note that answers within the octave to the key, and they must be so contrived that the notes between the key note and the fifth may answer equally in each part, inasmuch as the agreement and regularity necessary in the notes beginning and ending the fugue, should be equally observed through the whole continuance of the melody whereof the fugue is composed. Thirdly. Whereas in diatonic progression, either in ascending or descending from the key note to its fifth, and the contrary, there is one note difference, you may make one of those two notes in conjoint degree of that progression that contains the greater number to agree with the progression that must be unavoidably used wherein there is one note less and that in the middle of the melody. Thus, if the melody of the fugue proceed by descending from the key note to its fifth, we can therein only use the sixth and seventh notes; but in order to make the same melody equal in descending from the fifth to the key we can pass upon the fourth, third, and second notes, so that we choose one of the three last notes nearest the key note on which the air of the fugue ends, so that the melody nearly approximates that first heard. Also, taking the progression containing the greater number of notes, that which contains the least number must be made to agree with it rather towards the end than at the beginning of the melody. The following examples will better explain this.

Music.



Music.

In the first example, the sixth or seventh answers to E in the Guide. (1). In the second, the sixth answers to the third. (2). In the third example, the seventh corresponds with the third. (3). In the fourth, the fifth (4) or the fourth (5) answers to the key notes. In the fifth example, the third corresponds with the seventh (6) or to the sixth. (7). In the sixth, the third answers to the seventh (8) or to the sixth, (9), the second answers to the sixth (10) or to the fifth. (11.) The fifth answers to the second (12) or to the key, (13), and the key note answers to the fourth. (14).

Artificial discords. Fourth.

There are many other points to be noticed in the choice between the five notes ascending to the fifth of the key, to make an air answer to that of the four notes from the fifth to the key note ascending whether the air ascend or the contrary, inasmuch as there are always five notes one way and four the other; it is sometimes necessary to borrow even the second note or the fourth for the purpose of making up five notes from the fifth to the key note ascending, or which is the same, from the key note to the fifth descending; which matters will be subjoined in the eleven following observations.

First. The fifth is always to answer the key note, and the key note the fifth in the first and last notes of the fugue; nor can this rule be avoided except in the middle of the air, where the fourth may be borrowed instead of the fifth and the second instead of the key note, for the purpose of making the succession of the melodies in one and the other more conformable, this means affording but four degrees from the second note to the fifth ascending, or from the fourth to the key note descending, from which an air may be composed nearly similar to that within the compass of the four degrees, from the fifth to the key note ascending or from the last to the other descending. The same expedient gives us also five degrees from the second note to the fifth descending and from the fourth to the key note ascending, according to the five degrees from the fifth to the key descending or the contrary. Now when we are satisfied with the melody formed from these borrowed notes as nearly similar to that which is heard between the key note and its fifth, it is because, on account of the diatonic scale, it cannot be exactly the same, the notes of which scale being unchangeable by new sharps or flats except in minor keys, wherein a flat is added to the sixth note in descending and a sharp to the leading note in ascending; with the liberty also of sometimes adding a sharp to the third of all minor keys, and to the fourth of all keys when they stand in the place of a leading note, as may be seen in the sixth example on the notes marked (15), so that the notes make a major third or a sharp sixth with the bass.

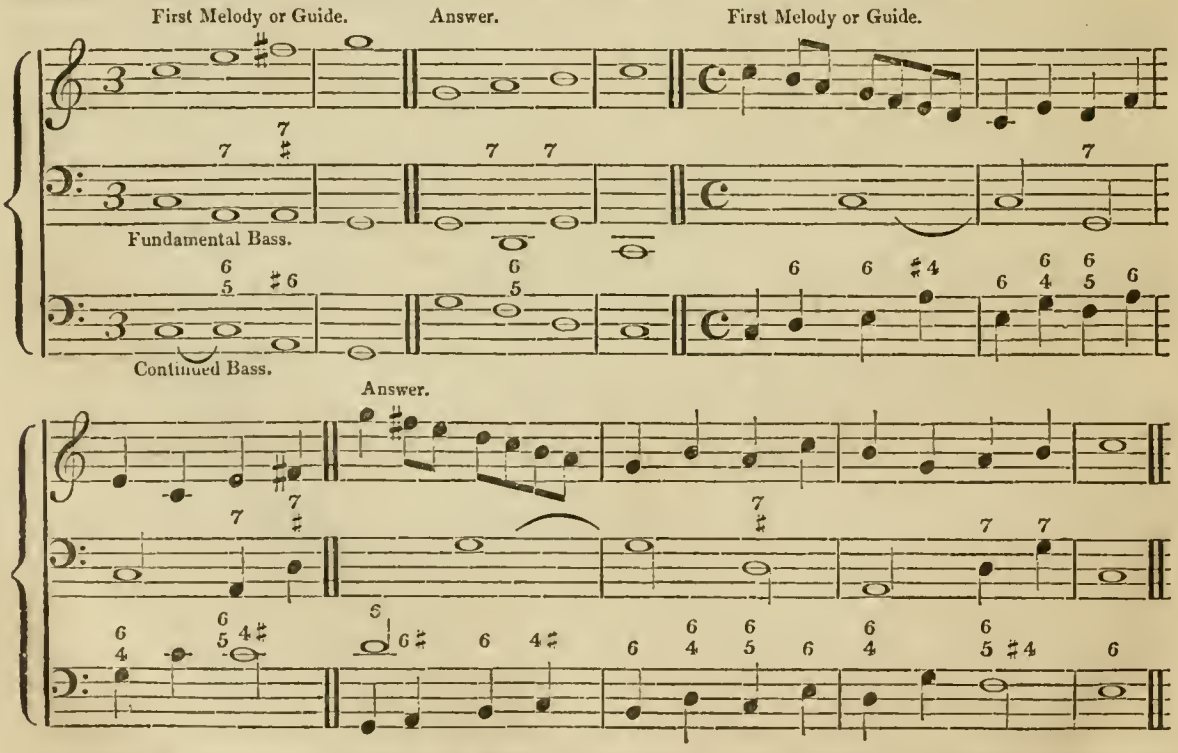
Secondly. Having found the bass of the fugue, you may then seek for the other parts that may accompany the

Music. melody or bass, in which it is to be observed that the bass and other parts nearly follow the same progression as the first melody and its answer; moreover, he bass will admit the same relative chords in one as in the other if the imitation be correct. Thus by the aid of the bass and of the other parts may be found the means of making several fugues heard together, or of composing another sort of fugue called a canon whereof mention will be hereafter made. Music.

Thirdly. Several basses may be written to the melody of a fugue, or the melody may be written to suit a bass more than any other part; but this is of no consequence, inasmuch as by inverting the chords various basses may be composed, or a part may serve as a bass though the melody might be more suitable to an upper part. Nothing is more agreeable than alternating these different ways of accompanying a treble or bass, more especially in a fugue where variety is only discernible in the accompanying parts. And when we said that the bass of a fugue might always be nearly the same, it was to give the most perfect idea of the mode in which the melody of a fugue ought to be imitated, the similarity of the chords being of itself a sufficient proof of it.

Fourthly. To ascertain the choice to be made of notes within the compass from the key note to its fifth ascending and from that to the other descending, we must ever be mindful of the key note and its fifth which are usually the boundaries of the melody of a fugue, but we are not to be so restricted as to prevent us from making the intervals of the answer conformable to those of the fugue inverted, especially in the middle of the air. Thus, having the interval of a third, fourth, fifth, sixth, or seventh in the middle of the first melody, the like should come in the same part of the melody that answers the first and so of the others. This, however, is a rule from which deviation may take place in favour of a diatonic progression or of the principal notes of a key, keeping in view rather what follows than what precedes, and also the key note and its fifth, which generally begin and end the fugue, rather than the similarity of intervals we have laid down. Hence the interval of a fourth often answers that of a fifth, and the latter often answers the former. If, however, one or more diatonic intervals occur after a consonant interval, recourse must be had to those places where the key note appears, that the diatonic progression which is found from the last consonant interval until the key note be duly imitated in the answer until the fifth, or if the progression lead to the fifth it must be imitated in the answer towards the key note, especially if a progression of either sort and by a cadence, for the final cadence of a fugue should always be upon the key note and upon its fifth. But if the cadence do not absolutely end the fugue, the fourth may be used instead of the fifth.

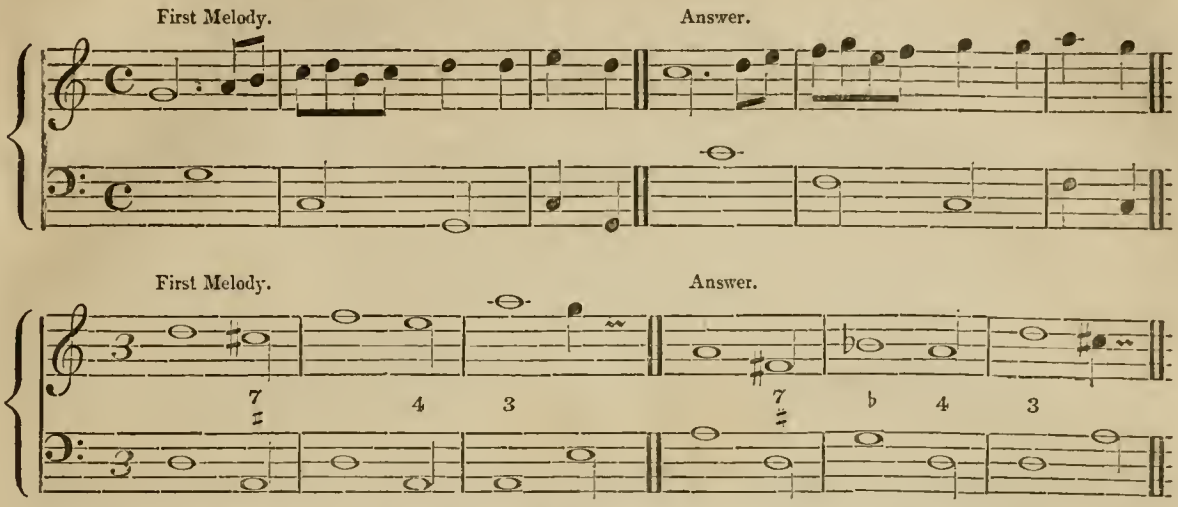
Fugues should seldom begin or end but by the key note, its fifth, or its third, the sixth or seventh then answering to that third, as may be seen in the fifth example above given. Thus by adhering to what follows rather than to that which precedes, and by the similarity of the chords that are to meet over the bass employed to melodies which answer one another in fugue, a mistake will seldom occur. We subjoin some examples.



In the above example the continued bass shows that whatever bass you imagine to a melody proposed as the subject, it may always have a similarity by carrying the same chords. In this case, however, the fundamental is still better.

Fifthly. The melody or subject of a fugue should not be composed of less than half a bar; if it contain more than four bars the answer must begin in the fourth, but the movement should be somewhat quick that so much melody without harmony may be agreeable.

 Sixthly. Any of the parts may begin the fugue, but it must naturally end upon the first part of the bar or measure when divided into two parts, and on the third part of the bar when divided into four parts. If it end in any other part, it is for the sake of the words or some caprice of the composer. Novelty allows an occasional trespass on these rules which are founded on good taste, and the surprise caused by their violation can only be pleasing in the hands of a master possessed of judgment and discretion. Fugues may end also upon other notes than the key note and its fifth. We here give some examples in illustration of what has been advanced.

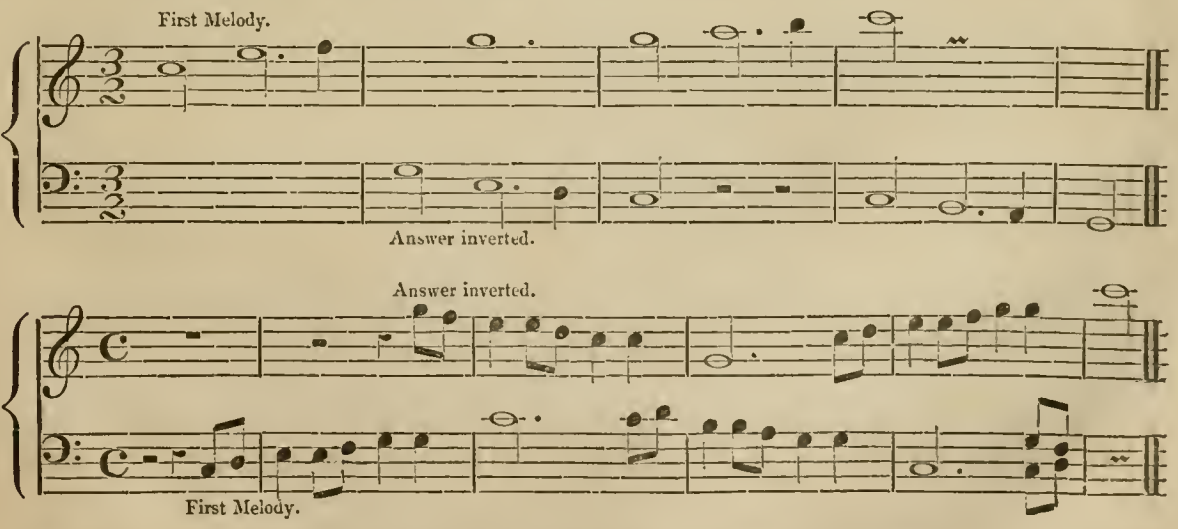


Seventhly. The melody of the fugue must be imitated as nearly as possible. The same number of semibreves, minims, &c., contained in any part of the measure must be employed wherever the fugue is heard.

Eighthly. Each part may be begun in the unison or the octave of the first part, but the effect is much more striking and agreeable when the parts follow each other at the fourth or the fifth. A fugue may commence and be answered by any of the parts throughout the composition. If the key be changed, every note of the fugue must be relatively the same in the new key as to degrees as well as to quantity and measure.

Ninthly. We may wait until the melody or subject of the fugue be entirely completed, each part answering it after the other, but as sometimes in the middle of the design each part may be contrived to answer, the effect is good if nothing be changed. See the sixth example.

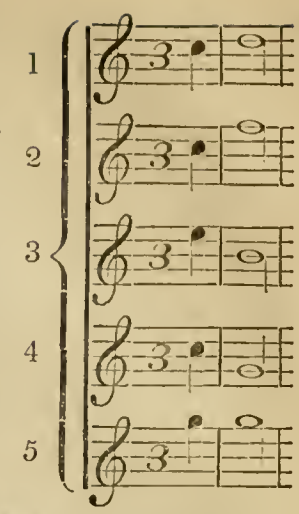
Tenthly. Much grace and variety in the harmonies may be effected by *inversion*, for having designed and arranged the subject, it may be inverted in such a manner that the subject which has been heard ascending may be heard descending and the contrary without any other change, as under.



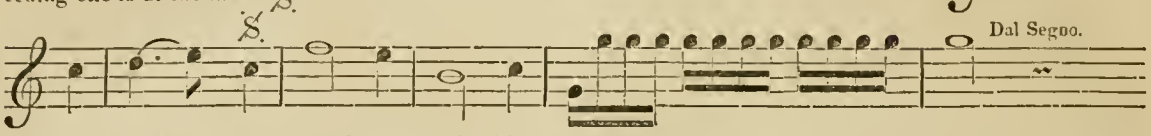
Eleventhly. Several fugues may be introduced together or after each other; they should, however, be so brought in as not to begin on the same part of the bar, nor in the same bar, especially for the first time. It is well to invert their progressions, and increase and diminish the value of the notes as to time; and if they cannot be heard together a part of one may at least be heard with part of another. To this we will add, that if the student desire

Music. to see what can be done, and that beautifully, in treating a fugue in every possible shape, and to profit by it, the fugues of John Sebastian Bach will afford him abundant opportunity.

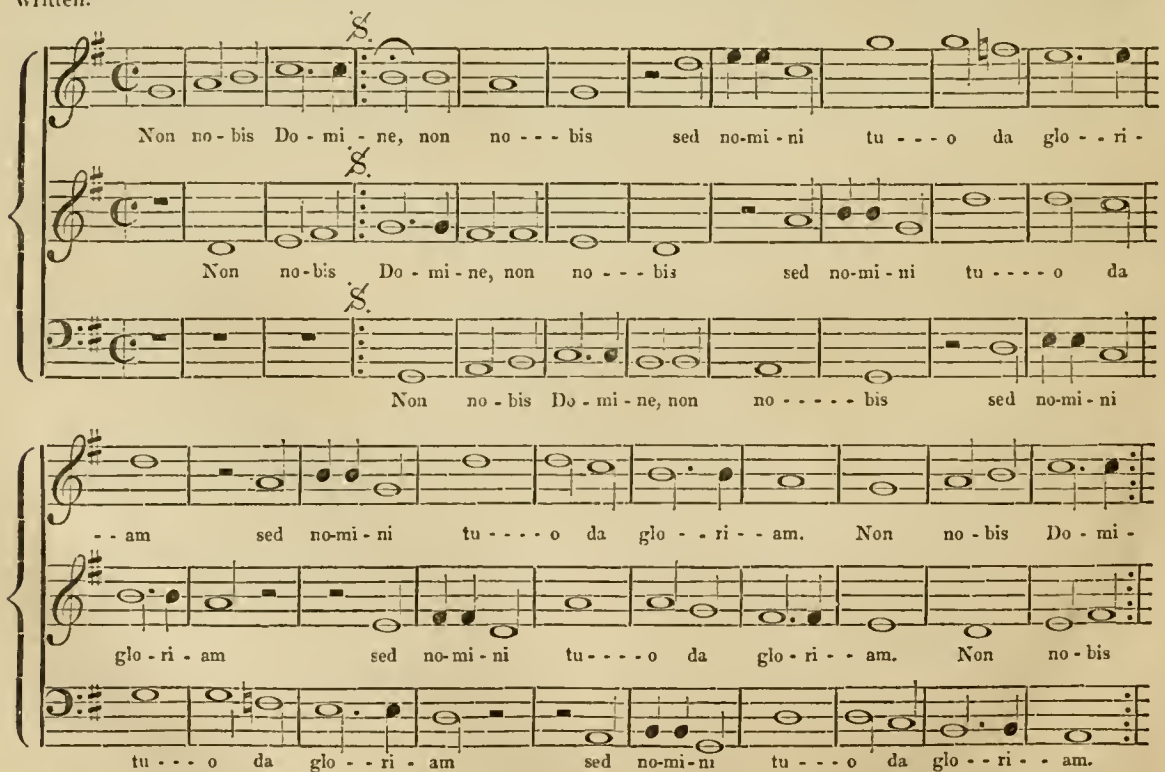
The canon is a species of fugue, sometimes called a perpetual fugue. It consists in an air the subject of which is repeated in all the parts. The most common are those taken in the unison or in the octave, and they are treated according to the extent of the voices or instruments employed. To compose this species you make your subject at pleasure, adding as many parts as you think proper; of these an air is composed with the melody so contrived that one part serves as a prolongation of the other. After this the air begins by one of those parts, and this is immediately followed by another at the time the first subject is ended. Thus each part following the other when the first is concluded, it recommences, still followed by the others as at first, care being taken that each part began at its proper place. If one of the subjects contained in each of the five parts in the margin were selected, the others might be easily added, and thence an entire air made wherein all the difficulty of this canon consists, namely, in the air.



The melody of the five parts is very obvious in the canon below, which is founded on the bar at the side hereof, some notes are added merely for the sake of the air; and it must be observed that the parts begin the air after each other when the preceding one is at the mark 𝄋.



This perpetual fugue may be taken up at the fifth and at the fourth; when this is done the whole of the melody must be arranged and accidental sharps and flats, as requisite, added to those notes where the use of the natural degrees would prevent the air from being exactly similar without regarding the modulation but the melody only, whence its difficulty; because each time that a part takes up the fugue it must enter a new key, as the fifth if the part takes up at the fifth, or the fourth if taken up at the fourth. Whereas in the canon above given the parts are unlimited in number, so in that whereof we have just been speaking they do not exceed four parts. We shall here place before the reader the finest specimen now extant of this kind of Music, which Callcott says "will ever remain a lasting ornament to the taste and science of the Country in which it was produced;" to which we will add, that we do not believe there is any composition whatever that has been so often performed since it was written.



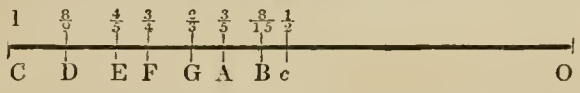
We shall conclude this part with the words of the admirable Hooker, who in the Vth Book of his *Ecclesiastical*

Music. *Polity* says, "Touching Musicall harmony, whether by instrument or by voyce, it being but of high and low in sounds a due proportionable disposition, such notwithstanding is the force thereof, and so pleasing effects it hath in that very part of Man which is most divine, that some have beene thereby induced to thinke that the soule itself by Nature is, or hath in it harmony. A thing which delighteth all ages and beseemeth all states; a thing as seasonable in griefe as in joy; as decent being added unto actions of greatest waight' and solemnitie, as being used when men most sequester themselves from action. The reason hereof is an admirable facilitie which Musicke hath to expresse and represent to the mind, more inwardly than any other sensible meane, the very standing, rising, and falling, the very steps and inflections every way, the turnes and varieties of all passions whereunto the minde is subject: yea so to imitate them, that whether it resemble unto us the same state wherein our mindes alreadie are, or a cleane contrary, wee are not more contentedly by the one confirmed than changed and led away by the other. In harmony the very image and character euen of Vertue and Vice is perceived, the mind delighted with their resemblances, and brought, by having them often iterated, into a loue of the things themselves. For which cause there is nothing more contagious and pestilent then some kindes of harmonie; then some nothing more strong and potent unto good. And that there is such a difference of one kinde from another, we neede no proof but our owne experience, inasmuch as wee are at the hearing of some more inclined unto sorrow and heavinesse; of some more mollified and softened in minde; one kinde apter to stay and settle us, another to move and stirre our affections; there is that draweth to a marvellous grave and sober mediocritie; there is also that carryeth as it were into extasies, filling the minde with an heavenly joy and for the time in a manner severing it from the body. So that although we lay altogether aside the consideration of dittie or matter, the very harmony of sounds being framed in due sort and carryed from the eare to the spirituall faculties of our soules, is by a natiue puissance and efficacie greatly available to bring to a perfect temper whatsoever is there troubled, apt as well to quicken the spirits as to allay that which is too eager; soveraigne against melancholy and despaire, forcible to draw forth teares of devotion, if the minde be such as can yeeld them, able both to moove and to moderate all affections."

On Musical Temperament and the Compass of Voices and Instruments in an Orchestra.

As in our imperfect instruments and common notation of Music only twelve intervals of sound are admitted into the octave, and as intervals or concords, though of the same name as thirds, fourths, &c., do not consist of the same degrees or elements, though there may be always the same number of them, as some fourths or fifths are perfect and others not, a deviation from truth and nature is necessary to accommodate or mend the imperfect concords by transferring to them part of the beauty of the perfect in order to remedy the defect. The process by which they are accommodated or tempered is called temperament. Temperament.

If a string be stretched between two bridges and it be stopt in the middle, and the sound of half of it be compared to that of the whole, we acquire the idea of the interval of two sounds whose times of vibration are in the ratio of 1 to 2, and their vibrations are in proportion to their lengths, so by other divisions of the string we acquire ideas of other different intervals. Now if the Musical string



C O and its parts D O, E O, F O, G O, A O, B O, and C O, be in proportion to each other as the numbers 1, $\frac{8}{9}$, $\frac{4}{5}$, $\frac{3}{4}$, $\frac{2}{3}$, $\frac{3}{5}$, $\frac{8}{15}$, $\frac{1}{2}$, their several vibrations will exhibit the system of the eight sounds to which Musicians have given the names of C, D, E, F, G, A, B, c. If we tune accurately four following fifths upon an instrument or string, as C, G, D, A, and E, we shall find that the last fifth E will be a discordant major third with the C from which we started, and, indeed, too sharp for the ear to bear; in short, it is not the same E produced as a fifth from A which we ought to have as the third of C. Let us suppose a string long enough to sound the interval from C to E as above, and its subdivisions into fifths be taken as relates to the length of the string, they will stand as follows, each being three times the length of the preceding, C = 1, G = 3, D = 9, A = 27, E = 81, which will represent its quantity. Now the third major E from C in the above diagram is $\frac{4}{5}$ of the string C O, or which is the same, $\frac{1}{5}$ from C, or the octave itself will be represented by 5; then we shall have them going by octaves each double the preceding, thus E = 5, E = 10, E = 20, E = 40, E = 80. But by the first operation we had E = 81, therefore these two E's are different and their ratio is $\frac{80}{81}$, which is exactly the value of a major comma. It is manifest that by following up this system of ratios we may obtain those of any intervals sought. If we produce the progression of fifths to the 12th power, which will happen on B sharp, we shall find that this B sharp will exceed the C wherewith it should be in unison, and that it is in the ratio to it of 531441 : 524288, which is the comma of Pythagoras. By the preceding calculation the B sharp should have exceeded the C by three major commas, whereas it only exceeds it by the comma of Pythagoras. The same sound then E, which is the fifth of A, is to form a third major of C; it is the division of the overplus in the octave which is to be tempered in tuning an instrument. This is not the place for a further investigation of the subject which properly belongs to the doctrine of harmonics, but we thought the simple and concise view we have taken of it would be acceptable to the Musician who would not be inclined to study that doctrine. The following is a Table from Dr. Smith of the ratios of the different intervals which we think useful to him.

Perfect Ratios.			Intervals' Names.	Mark.	Elements.
C : c	:: 2 : 1	C c	Octave.	VIII.	3 T + 2 *t* + 2 H.
B : c	:: 16 : 15	B c	Hemitune.	II or 2nd.	
C : B	:: 15 : 8	C B	VII. major.	VII.	3 T + 2 *t* + 2 H.
C : D	:: 9 : 8	C D	Tone major.	T or II.	

Perfect Ratios.				Intervals' Names.		Mark.	Elements.
D :	c	::	16 : 9	D c	7th minor.	7th.	2 T + 2 t + 2 H.
A :	c	::	6 : 5	A c	3d minor.	3rd.	T + H.
C :	A	::	5 : 3	C A	VI. major.	VI.	2 T + 2 t + H.
C :	E	::	5 : 4	C E	III. major.	III.	T + t.
E :	c	::	8 : 5	E c	6th minor.	6th.	2 T + t + 2 H.
G :	c	::	4 : 3	G c	4th minor.	4th.	T + t + H.
C :	G	::	3 : 2	C G	V. major.	V.	2 T + t + H.
F :	B	::	45 : 32	F B	IV. major.	IV.	2 T + t.
B :	f	::	64 : 45	B f	5th minor.	5th.	T + t + 2 H.
D :	E	::	10 : 9	D E	Tone minor.	t.	
			81 : 80		Comma.	c.	T − t.

Tuning the organ. The mode of tuning the organ as recommended by Mr. Flight, a very skilful maker of the instrument, is to divide the comma, or rather to distribute it over the instrument, instead of taking a series of perfect fifths, to make each sufficiently flat to meet the error in the pitch of E, thus in the four fifths each would lose a quarter of a comma and the major third will be perfect. From this E a similar set of fifths tunes B, E sharp, C sharp, and G sharp, which last will then be a perfect third to E. Then going back to C, we must tune the F below, a quarter of a comma too sharp to make C flat as a fifth in respect of F, and proceeding then to tune B flat and E flat in a similar manner, the scale will be tuned by the common temperament. This method leaves the major thirds and minor sixths perfect in scales not having more than three sharps or two flats in the signatures. Beyond that the major thirds and minor sixths are harsh. So the minor thirds within those limits are too flat and the major sixths too sharp by a quarter of a comma, and the fourths equally too sharp. G sharp when standing for A flat excepted. Those intervals which are changed, by diesis, an interval less than a comma, have received the name of *wolf intervals*, from the howling sort of noise produced by their beats, and that between G sharp and E flat is called the *great wolf*.

Piano-forte. The piano-forte is generally tuned by dividing the scale as nearly as may be into twelve equal semitones. To accomplish which the fifths are kept sharper than in the above temperament, being flattened not more than the eleventh part of a comma. Thus the wolves disappear, but the thirds, and major and minor sixths are too harsh for the organ.

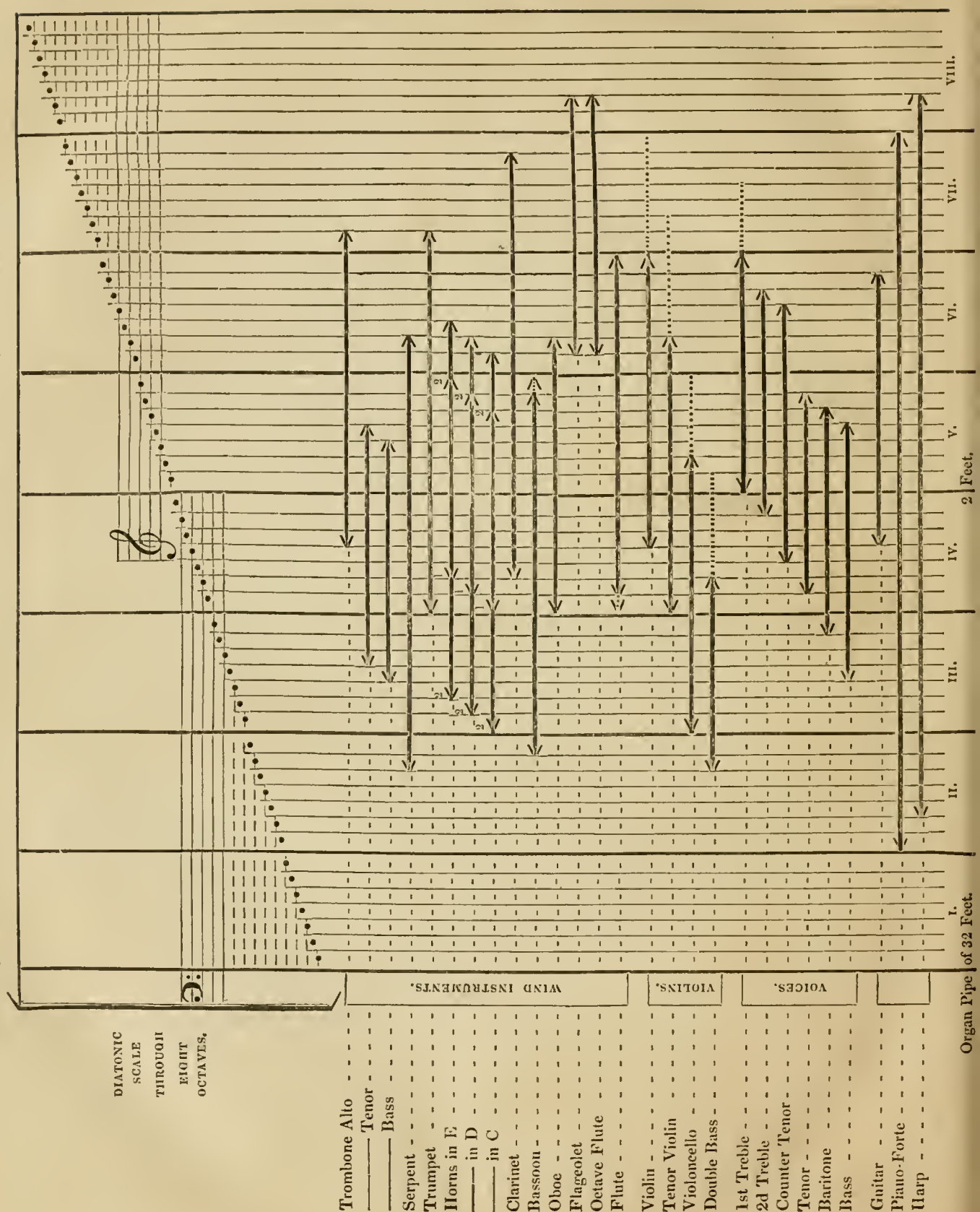
De Momigny. Notwithstanding the general reception of temperament as we have above explained it, there are those who do not admit its rules, and when we find so learned and celebrated a Writer as De Momigny among them, we confess ourselves somewhat puzzled. We shall give his view of it. He says, because by four consecutive fifths or twelfths C 1, G 3, D 9, A 27, E 81, a different E is obtained from that formed by the octaves of the fifth and the C itself, namely, E $\frac{1}{5}$, E $\frac{1}{10}$, E $\frac{1}{20}$, E $\frac{1}{40}$, E $\frac{1}{80}$, persons have reasonably concluded that a temperament was necessary to bring these two E's to the same pitch if we wish them to agree. To make them agree do we make them meet half way? No! It has been decided that the E 81 being the only wrong party concerned in the affair should be at the whole expense of making good the damage, by submitting to the E 80, which is not to be moved. Where then is the temperament? It is in the diminution of each of the four fifths $\frac{\text{C G}}{1\ 3}$, $\frac{\text{G D}}{3\ 9}$, $\frac{\text{D A}}{9\ 27}$, and $\frac{\text{E A}}{27\ 81}$, for this E 81 being not only too high in the fifth last taken E, but equally so in the other three fifths, all four are to be flattened not to reach 81 but 80 only. If the mathematical point be 81, why not let the fifths reach it? We have just said why it is that 81 may become 80. Have nature and the mathematics two weights or two measures here, inasmuch as by one we reach 80 and by the other 81? If these points are both equally natural and mathematical why sacrifice one to the other, and why is the justness of the triplicate progression sacrificed to the other. Do they say that the ear, inexorable on the justness of the octave, is indifferent with regard to fifths? because that would be saying that the ear was a perfect judge of an octave, but a partial one in respect of a fifth. How do we find in the ear this scrupulosity which murmurs at the least defect in the octave and relaxes with regard to the fifth? Has the ear also two weights and two measures, or is it not clear in respect to the octave? It appears to me, says De Momigny, that if it is a good judge of one interval it is not less so of another, and consequently that the fifth which they call tempered, not to call it false, is at least a just musical fifth if it be not a just mathematical fifth, because it seems to me absurd that Nature should contradict herself in her most simple operations. One of these two things must be true. Either that the data of the triplicate or subtriplicate ratios are not Musical, or that they ought to agree with those of the duplicate or subduplicate proportion, if Nature ever intended that they should unite, without which it is evident she contradicts herself. But the triplicate ratio giving 81 and the duplicate ratio 80, if these terms are both of them natural and mathematical and ought to reunite and become identified with one another so as to be a true octave, it follows that the mathematical fifth should be too sharp or out of its true Musical proportion, and at the same time that one of these ratios cannot be exact, and can only serve as an approximation and not as a perfect guide. Then to tell Musicians that they tune, sing, and play false, when they only correct the anti-Musical data of the mathematics, is unjust and unreasonable towards them, inasmuch as they cannot be wrong in substituting what is correct for that which is incorrect. If the ear had not been constantly opposed to the sophists, who maintain that the data of the monochord are true as well as canonical and Musical, their false scale would long since have been substituted for ours. Is it not strange that they should allege our scale to be false because it does not agree with the data of the monochord, when, on the confession of the patrons themselves of the monochord, of all the intervals which derive their proportions from the regulating string, it is the octave only which is false in the result? The smallest or elementary interval being the semitone and the greatest the octave which recommences the system, it is only necessary to form the semitones and octaves Musically true to have the keys in tune and proper for playing equally well in every key. He finishes by observing, whatever

Music. prejudices may exist, whether on the part of scientific or of practical men respecting temperament, it is certain, and must be allowed, that every ratio which oversteps or falls short of the true octave is a false ratio, since a true octave is indispensable in Music whatever be the species of degrees by which we arrive at it. It may be deemed presumptuous in us to offer an opinion on this subject on which so many learned men have been engaged and treatises written, but we must own that we incline to De Momigny's opinion, and that it is from some defect in the formulæ that the ear or rather Nature and mathematical science are at variance. De Momigny at the end of the article, which is that of "Temperament," in the *Encyclopédie Méthodique*, 1818, mentions that he was about to make some experiments on the subject; if he has done so, we are not aware that the results have ever been published. Music.

The instruments used in an orchestra are of three sorts besides the natural instrument of the voice and the artificial ones of the organ, piano-forte, and guitar; namely, stringed instruments played with a bow, wind instruments, and instruments of percussion. Each of these has its own peculiar character as well as compass; it is by intimate acquaintance with their character, especially that of wind instruments, that the German masters have attained so great eminence, and have produced surprising effects by combining instruments unknown to the Ancients. It is not our intention to detail these instruments separately, but as the reader, and especially the Musician, should be acquainted with the compass of them, we have on the following page subjoined a synopsis, altered from Choron's, which will give him at once the information requisite. Instruments and their compass.

In the foregoing Essay the principal authorities we have consulted, and upon some of which we have drawn very largely, are Choron's *Principes de Musique*; Pepusch's *Treatise on Harmony*, published in 1731, a Work of which Shield says, "It contains many exploded doctrines, but it likewise contains principles which will be the basis of theory in 1800 or any other Century." Rameau; Dr. Callcott's *Musical Grammar*; *Encyclopédie Méthodique*, Art. *Musique*; Burney's and Hawkins's *Histories*; Grassineau's *Musical Dictionary*. After the synopsis of instruments will be found an explanation of technical terms used in Music, and a list of the principal Writers on the Science.

Synopsis *of the* Compass *and* Scales *of the different* Instruments *of an* Orchestra *and of the* Human Voice.



EXPLANATION

OF THE

CHIEF TECHNICAL TERMS USED IN MUSIC.

Abbreviations are strokes over or under a semibreve, minim, or crotchet, which divide them into quavers if there be only one stroke; if two strokes into semiquavers; if a triple stroke into demisemiquavers.

Accent. The stress or expression given to certain parts of a bar or measure.

Acciaccatura. A grace note one semitone below that note to which it is prefixed.

Accidentals. Those flats and sharps which occur in a movement, besides those which are prefixed in the signature.

Accord. See *Concord.*

Accressimento. The increase of the length of a note one half of the duration it originally has by means of a dot appended to its right side.

Acute is understood of a sound or tone which is high in respect of another.

Adagio, written Adag°. and Ad°., an Italian word denoting the slowest of the Musical time, grave excepted.

Added lines and notes. Those lines and notes above and below the staff, which, proceeding higher or lower than the staff itself, cannot be contained within it.

Ad libitum. A term used to denote that the time of the portion of the movement to which it is prefixed is to be at the performer's pleasure.

Affetto, or *Affettuoso*, prefixed to a movement, shows that it is to be performed in a smooth, tender, and affecting manner, and thence rather slow than fast.

After note. A small grace note which, in contradistinction to the appoggiatura, follows a larger one, and depends upon that for its time.

Alla breve. The name of a movement whose bars consist of two semibreves or four minims; it is denoted by a barred C or semicircle.

Allegretto. A diminutive of allegro: it is a time rather quick, but not quite so quick as the allegro.

Allegro. A term used to signify that the movement is to be performed in a brisk, lively manner, but without hurry or precipitation, and quicker than any other time, except that marked presto. The usual six distinctions of time succeed each other in the following order: grave, adagio, largo, vivace, allegro, and presto. If allegro be preceded by the word più it adds to the strength of the signification, intimating that the time must be brisker and gayer than allegro. If preceded by poco, it weakens the signification, and intimates that the time must not be considered quite so brisk and lively as allegro.

Al segno. A notice to the performer that he is to return and commence the repeat at the sign 𝄋.

Alto. The countertenor part.

Andante signifies, especially in thorough bass, that the notes are to be played distinctly.

Apotome. The remaining part of an entire tone after a major semitone has been taken out of it.

Appoggiatura. A small note placed before a larger one of longer duration from which it usually borrows half its value. It always occurs on the strong or accented part of the measure. Sometimes it is only one quarter of the length of the note it precedes.

Arioso, or *Legato.* See *Legato.*

Arpeggio, or *Arpeggiato.* The imitation of the harp on any instrument susceptible of such imitation by striking the notes of a chord in quick and repeated succession.

Arsis and Thesis. Terms used in composition, as when a point is inverted or turned, it is said to move per arsin et thesin; that is, when a point rises in one part and falls in another where an agreeable variety is produced. Also the rise (arsis) and fall (thesis) of the hand in beating time.

Assai. An Italian adverb of quantity often joined to the words allegro, adagio, presto, &c., and signifies that the measure and motion of the piece should be kept in a mean degree of quickness or slowness, quick or slow enough, but not too much of either.

A tempo giusto is a direction to play in the true just time. See *Battuta.*

Atto di cadenza is that disposition of the notes which not only makes a cadence in one part, but directs and points it out in others. Thus when the bass rises a fourth, or falls a fifth, this motion is really a cadence, and at the same time it is a sign that the other parts thereupon perform their proper cadences.

Authentic melodies are such as have their principal notes contained between the key note and its octave.

Back fall. The name, now never used, of one of the old English graces.

Bar. A stroke vertically drawn across the stave, including between each two a certain quantity or measure of time, varying as the Music is either triple or common.

Baritone. Called by the French basse taille. It is, in fact, a high bass, and in the ancient Church Music is written with the F clef upon the third line.

Bass. The lowest or deepest of the parts in Musical composition.

Baton. Used to denote a rest of four semibreves.

Battuta. The motion of beating time with the hand or foot. By the Italians the phrase *A tempo giusto* is used after a recitative to show that the measure is to be beat true and just, which during the recitative was conducted irregularly to suit the action, or express some passion, &c. &c.

Beat. A reversed shake without a turn.

B molle. One of the notes in the scale of Music, usually known as B ♭, or soft in opposition to B quadro.

B quadro, or *quarré.* Taking its name from its figure ♮. This is generally called B natural or sharp, in contradistinction to B mol or flat. As the ♭ placed before any note signifies that it is to be lowered a semitone minor, so does the quarré or ♮ raise it to its diatonic situation.

Bind. The same as ligature or tie, to group notes together.

Bis. Where this word is placed over passages which have dots placed after one bar and before a subsequent bar, it signifies that the passage is to be twice played.

Brace is the line or bracket at the beginning of each set of staves in every line that ties them together in a vertical direction.

Breve. A note formed like a square without a tail, and equal to two semibreves or four minims. It signifies also a measure of quantity which contains in beating two down strokes with the hand and two strokes up, but this only in common time with the mark C. See *Alla breve.*

Brillante. Brisk, airy, gay, and lively.

Cadence is the termination or fall of the notes on a chord or note closing the strain and naturally expected by the ear, and is much the same in Music as the period which closes the sentence in a discourse. It is perfect when the harmony of the fifth precedes that of the key note, and imperfect when the key note with its harmony precedes that of the fifth or dominant without its added seventh, taking its name of imperfect, because the ear does not seem to acquiesce in the conclusion, but to expect a continuation of the song or whatever the Music may be. A broken or interrupted cadence, is when the bass, instead of falling a fifth, as expected by the ear, rises a second either major or minor.

Cadenza. Such an extemporary passage as the performer introduces previous to the final shake on the last note but one of a melody where a pause 𝄐 is marked.

Canon. A perpetual fugue written upon one line originally, with marks to show when the parts that imitate are to begin and end. This, however, is more properly what the Italians call the *Canone chiuso* or *Canone in corpo.* The *Canone partito* or *risoluto* is when all the parts of a perpetual fugue are written in partition, or in separate parts, with the proper pauses each is to keep or observe.

Canto, or *Soprano.* The treble part.

Canto fermo. The plain song. The Italians call every part whether plain or figured, of the subject of counterpoint, by this name.

Capriccio. A term applied to certain pieces in which the composer gives a loose to his fancy without confinement to particular measures or keys.

Characters. Those forms in Musical writing or printing which are the signs of clefs, notes, rests, &c. &c.

Chords. A combination of two or more sounds heard contemporaneously, and forming a harmony between them.

Chromatic. The introduction of semitones between each of the tones in the diatonic scale.

Clef. A mark placed at the beginning of a staff representing a note or letter of it which determines the names of the degrees. It is always placed on a line, never in a space.

Coda. The concluding passage of a movement when it occurs after a protracted perfect cadence. Its length varies, in some cases it runs to a great extent, in others it contains merely a single phrase.

Coletta. A short phrase or passage not constituting a part of a regular section, but serving to connect one section with another.

Comma. A measure of a tone, or the smallest part into which it is commonly subdivided; thus the tone between the fourth and fifth of the scale is supposed to be divided into nine small parts termed commas.

Common time, or *Equal time.* That which contains one semibreve, two minims, four crotchets, eight quavers, or their value in every measure or bar.

Composition. The art of disposing Musical sounds into airs, songs, &c.

Concertante. Those parts of a piece of Music which sing or play throughout the whole piece, either alone or accompanied, to distinguish them from those parts that only join at particular parts.

Concord. The relation of two sounds that are agreeable to the ear, whether applied in succession or consonance.

Conjoint degrees are those which adjoin each other in the order of the scale.

Consonance. The union or agreement of two sounds produced at the same time, the one grave and the other acute. Notes in consonance constitute harmony, as notes in succession melody.

Con sordini. Written short C S, with the dampers on a pianoforte, or the mutes on a violin. *Senza sordini*, or S S, signifies without them.

Continued bass. The same as thorough bass, so called because it goes quite through the composition.

Contralto. The countertenor part, or that immediately under the treble in the scale.

Contra-tenor, or *Counter-tenor.* See *Contralto.*

Counterpoint. So called originally, because the notes were points placed one against or over the other without any stems. Now every composition of many parts receives the name of counterpoint.

Crescendo. Increasing the sound from soft to loud, marked <

Crotchet. One of the notes of time equal to half a minim.

Da Capo, or *D C*, signifies from the head: it is placed to such airs as end with the first strain, and intimates that the song is to be begun again, and ended with the first part.

Dash. A small stroke thus ! placed over notes which are to be performed in a short and distinct manner.

Deceptive cadence. That which, by varying the final chord, avoids the final close.

Defective fifth, or *Semidiapente.* An interval or semitone less than the perfect fifth; it is also called the flat, lesser, or diminished fifth.

Degrees are the little intervals whereof the concords or harmonical intervals are composed. The three degrees in common use are the greater tone, the less tone, and the semitone.

Demi-ditone. A minor third.

Demiquaver. A note, two of which are equal to a quaver.

Descant. A composition in several parts. It is threefold, plain, figurative, and double.

Diapason. A musical interval by which most authors who have written on the theory of Music use to express the octave of the Greeks, as they use the terms diapente, diatessaron, and hexachord, to express the fifth, fourth, and sixth.

Diapente. An ancient term, but in modern Music signifying a fifth.

Diastem. A name given by the Ancients to a simple interval to distinguish it from a compound one, to which they gave the name of *system.*

Diatessaron. An ancient term, but in modern Music signifying a fourth.

Diatonic. That natural scale of Music which, proceeding by degrees, includes both tones and semitones. It includes all the different intervals formed by the natural notes, and also all those produced in transposing the natural scale higher or lower by employing sharps and flats.

Diazeuctic tone. In the ancient Greek Music that which disjoined two fourths, one on each side of it, and which being joined to either made a fifth.

Diesis. A division of a tone less than a comma.

Diminished interval. A defective interval, or one short of its just quantity by a lesser semitone.

Diminuendo. Diminishing the sound from loud to soft, marked thus >

Diminution. The change of the notes of a phrase or section from crotchets into quavers, quavers into semiquavers, &c. &c.

Direct. A sign 𝄇 thus employed at the end of a staff to indicate upon what degree the first note of the following staff is placed.

Discord. The relation of two sounds which are always and of themselves disagreeable, whether in succession or consonance. Every discord must be prepared, struck, and resolved.

Disdiapason. A double octave.

Dissonance. The same as *Discord*, which see.

Ditone. An interval comprehending two tones.

Division. The dividing a larger interval into a number of less intervals.

Dolce. Placed at the head of movements to signify that they are to be played softly, sweetly, and agreeably.

Dominant. The sound which makes a perfect fifth to the final in authentic modes, and a third to the final or sixth to the lowest chord of a plagal mode. In modern Music, it is the fifth above the key note, and derives its name, as in ancient Music, from its requiring the key note to be heard after it.

Driving notes. See *Syncopation.*

Enharmonic scale. One divided to quarter tones. See *Genus.*

Extreme. A term applied to those intervals where the diatonic distances are increased or diminished by a chromatic semitone.

False cadence. One in which the bass rises a tone or semitone instead of falling a fifth or rising a fourth.

Figurative counterpoint. That wherein there is a mixture of discords along with the concords.

Flat. A sign ♭ used to depress a note one semitone.

Flat fifth. See *Semidiapente.*

Forte. Placed over a movement to signify that it is to be played loud.

Fortissimo. To signify that it is to be performed very loud.

Fourth. An interval containing four sounds or terms between its extremes, and three intervals, or as being the fourth in order of the natural or diatonic scale from the fundamental.

Fugue. A musical composition, in which the different parts commence under certain laws after each other, each repeating what the first had performed.

Fundamental bass. The lowest note or root of a chord, which is found by inverting the notes whereof it is composed, so as to bring them in thirds above such roots.

Gamut. The general scale of the notes used in Music.

Genus. A scale of Music that proceeds by certain intervals; thus that which proceeds chiefly by tones is called the Diatonic genus. If artificial sounds are inserted between the natural sounds, a scale is formed of semitones alone, which is called the Chromatic genus. When a scale is formed yet smaller in its intervals, which in some parts contains quarter-tones, it is called the Enharmonic genus.

Graces. Ornamental notes prefixed or postfixed to notes, such as the appoggiatura, the shake, &c.

Gradation. A diatonic succession of chords either in ascending or descending.

Grave. A very slow motion, slower than largo, but faster than adagio. It is also applied in speaking of sounds to denote one that is low or deep in pitch.

Grazioso. Placed over a movement to signify that it is to be performed agreeably, elegantly, gracefully.

Groups. Notes linked together at the stems.

Guide. The leading voice or instrument in a canon or fugue.

Harmonic triad. The union or chord of any note with its third and perfect fifth: it is another name for the common chord.

Harmony. The combination, or the agreeable result or union of two or more sounds heard contemporaneously.

Harpeggio. See *Arpeggio.*

Haupt-ton. The principal or written note of the shake over which the character *tr* is placed; the secondary or superior note is called the Hülfston. It is a German word.

Hemitone. The same as semitone.

Hexachord. A progression of six notes, to which Guido gave the names *ut, re, mi, fa, sol, la.* The hexachord is of two sorts, greater and less. The former is composed of two greater tones, and two less and one greater semitone, which make five intervals. The latter is composed of two greater tones one lesser and two greater semitones.

Hold. The same as a pause.

Homophonous. Two or more chords, strings, or voices, are said to be homophonous when they are exactly of the same pitch or in unison.

Hülfston. See *Haupt-ton.*

Hyperoche. An interval equal to nearly one comma and a half.

Imbroglio (*Tempo d'*) Music written in one measure, but really performed in another.

Imitation. A species of composition in which one part is made to imitate the other. It differs from a fugue, in that it is not restricted in the intervals at which it takes up the point.

Imperfect cadence. See *Cadence.*

Imperfect concords. Thirds and sixths are the imperfect concords, and are so called from their liability to change from major to minor, or the contrary, still however remaining consonant.

Index. The same as *Direct*, which see.

Inharmonical relation. An unexpected introduction of a dissonant sound.

Interrupted cadence. See *Cadence.*

Interval. The difference between two sounds in respect of acute and grave, or the imaginary space terminated by two sounds differing in acuteness and gravity. What we call an interval the Ancients called a diastem.

Inversion. The placing the lower note of any interval an octave higher, or the higher note an octave lower.

Irregular cadence. The same as imperfect cadence. See *Cadence.*

Key, or *Key-note.* A certain fundamental note or tone, to which the whole piece is accommodated or set, and with which it usually begins and ends.

Key-board. The platform of levers in keyed instruments, which are pressed down by the fingers to produce a percussion of the string. It is divided into long white keys and short black ones.

Lagrimoso, marked over a movement, signifies that it is to be performed in a wailing, plaintive manner.

Languente, placed to a movement, denotes that it is to be performed in a languishing and soft manner.

Large. A character denoting the greatest measure of Musical quantity, being equal to eight semibreves.

Larghetto signifies that the piece is to be performed slow, but not quite so slow as largo.

Largo. A slow motion in a movement: one degree quicker than grave, and two degrees quicker than adagio.

Leading note. The sharp seventh.

Ledger lines. The lines added above and below the staff of five lines when the ascending or descending notes run above or below it.

Legato. Notes tied together by ⌒ ⌣ these marks either over or under them, so that they are thereby properly but one note. This is also called *Syncope.*

Leggiadro. The same as allegro.

Lente, or *Lento.* Denotes that the movement is to be very slow: between grave and largo.

Limma. A small interval, rather larger than a semitone minor.

Long. A character of Music containing four semibreves.

Maestoso. Prefixed to a movement, signifies that it is to be played with grandeur, and consequently slow, but yet with strength and firmness.

Major and *Minor.* Names given to imperfect concords, which differ from each other by a semitone minor. They are also used in the same sense in speaking of discords.

Measure. A bar of Music; but more properly used to express the interval or space of time, which the person who regulates the time employs between raising and letting fall his hand, to conduct the movement sometimes quicker and sometimes slower, according to the subject to be sung or played.

Mediant. The greater third in the major scale and the lesser third in the minor scale

Middle cadence. See *Cadence.*

Melody. The agreeable effect of different sounds ranged and disposed in succession. The air of a tune.

Mezzo soprano. A high countertenor or low treble, having the E clef on the second line of the staff.

Minim. A character in notation equal to two crotchets or half a semibreve.

Minor. See *Major.*

Mixed cadence. See *Cadence.*

Modulation. The regular progression of several parts through the sounds that are in the harmony of any particular key, as well as the proceeding naturally and regularly from one key to another.

Monochord. A Musical instrument to measure the variety and proportion of Musical sounds. It is constructed with a rule on which are sundry subdivisions, whereon is a string stretched upon two bridges at each end; between them is a movable bridge, by means of which, in applying it to the different divisions of the line, you find that the sounds are in the same proportions to one another as the divisions on the line cut by the bridge.

Mordente. A grace used by the Italian School, by turning upon the note without employing the note below.

Motion. The manner of beating the measure to accelerate or protract the pronunciation of the words or notes. It is this which distinguishes the different sorts of time.

Natural. A character ♮ used to contradict those flats or sharps that are placed in the signature on the same line or space whereon the natural is employed, in which case you must take the natural note as it is in the diatonic scale.

Notes. Characters which mark the sounds; that is, the elevations and depressions, and the swiftness and slowness of its mutions. In strict propriety, however, the word only implies the marks which denote the degrees of gravity and acuteness to be given to each sound.

Obligato. It is used of a movement written for a particular instrument or voice.

Oblique motion. That in which one part repeats or holds on the same note, whilst the other moves up or down.

Octave. An harmonical interval, consisting of seven degrees or less intervals. It contains five tones and two semitones.

Organ point, or *Pedal point.* A series of chords, in some of which the harmony of the fifth is taken unprepared upon the bass as a holding note, whether preceded by the tonic or by the harmony of the fourth of the key.

Part. A piece of the score or partition written by itself for the conveuience of Musicians: or it is one or more of the successions of sounds which make the harmony written apart.

Partitura, or *Partition*, the same as *Score*, which see.

Passage. A portion of an air or of a harmony, consisting at most of one, two, or three measures.

Passing notes. Graces, wherein small notes follow the larger ones to connect them with the succeeding note.

Pause. A character 𝄐 placed over a note to denote that the regular time thereat is to be delayed, and a long continuance made of the sound on that part of the bar.

Pedal harmonies. The same as *Organ* or *Pedal points*, which see.

Perfect cadence. See *Cadence.*

Phrase. A short melody which does not contain a perfect or satisfactory Musical idea.

Pianissimo. See *Piano.*

Piano. Placed over a movement to signify to be played softly and sweetly. *Pianissimo*, its superlative, denotes that it is to be played very soft.

Pitch. The degree of acuteness or graveness of a note. It is known from experiments that any noise whatever produced by a sonorous body, or by the vibrations of a string, which is repeated two hundred and forty times in a second at equal intervals, emits the sound of the tenor C; if three hundred and sixty, the fifth above. In two perfect unisons from two pipes each twenty-four inches long, each has two hundred and forty vibrations in a second, either alternate or coincident. In both cases the vibrations are not distinguishable from each other. What is called concert pitch is an arbitrary standard selected by Musicians, by which the tuning is guided, not very different from what we have above described.

Piu. A little more; it increases the strength of the word to which

it is added. Thus *Piu allegro*, a little quicker. *Piu piano*, a little softer, &c.

Plagal melodies are such as have their principal notes contained between the fifth of the key and its octave or twelfth.

Plaint chant. Used in ancient Ecclesiastical Music to signify the chief melody which was confined to the natural sounds of the scale.

Poco. A little less, has just the contrary effect of *Piu*, and therefore diminishes the strength of the signification of the word to which it is annexed. Thus *Poco presto* means not quite so quick as presto requires. *Poco piu allegro*, a little more lively and brisk than allegro alone requires.

Point. A mark · used by many authors instead of the dash ‖ ; but its principal use is to distinguish those notes from which an intermediate effect is required, different from the dash.

Post-positions are singular suspensions of the harmony, being the reverse of anticipations; they are, in fact, the retardations of harmony, by putting a discord upon the accented part of the bar, but not prepared and resolved according to the rules for discords.

Preparation of a discord. Taking care that the note which is the discord is heard in the preceding harmony.

Presto to a movement denotes that it is to be performed fast or quick, yet not with rapidity. The superlative *Prestissimo* is very quick. *Non troppo presto*, less quick, not too quick.

Quadrum. The same as *Natural*, which see.

Quaver. A measure of time equal to half the crotchet, or an eighth of the semibreve.

Quintaple. A species of time which contains five crotchets in a bar: but seldom used.

Radical bass. The same as the *Fundamental bass*, which see.

Repeat. A character 𝄋 to denote that what was last played or sung must be repeated or performed again: this is otherwise marked by dots against a bar, or by the words *Da capo* or *Bis.*

Resolation is the deciphering a canon, or perpetual fugue from a single line or staff, or in one part, in which all the voices that are to follow the guide or first voice are written separately, either in score, that is in separate lines, or in separate parts, with the pauses each is to keep, and in the proper tone for each.

Resolution of a discord. The descent of a discord after it has been struck either a tone or a semitone according to the mode.

Rest. A pause or interval of time, during which there is an intermission of the voice or sound. Rests are of various lengths, and accordingly expressed by certain characters according to the quantity of certain notes.

Rhythm. The disposition or arrangement of melody or harmony in respect of time or measure.

Rinforzando. Denoted thus > <, to signify that the sound is to be diminished and increased.

Ripieno signifies full, and distinguishes those parts that play now and then to fill up the Music from those that play throughout the piece.

Root. The prime or lowest note of the *Harmonic triad*, which see.

Scale. A series of sounds rising or falling towards acuteness or gravity from any given pitch of tune to the greatest practicable distance, through such intermediate degrees as make the succession most agreeable and perfect, and in which all the harmonic intervals are conveniently divided. This scale is denominated a universal system.

Schisma. An interval equal to about half a comma.

Score, or *Partition.* The Music of a piece written for all the several parts in their places under each other, and the bars scored or drawn in their proper places through the whole from top to bottom.

Second. An interval consisting of two degrees distant from each other one tone or one semitone; consequently there are two kinds of seconds, the major second, or tone, and the minor second, or semitone.

Segno. See *Al segno.*

Segue. It follows. A word often written before a part, which without stopping is immediately to follow the last note of the preceding movement. It is also used where minims, crotchets, &c. are subdivided by strokes drawn through their tails to make them abbreviated groups, to signify that they must be performed in the manner the first are marked.

Semibreve. A note of half the quantity of a breve, containing two minims, four crotchets, &c. The semibreve is accounted one measure of time, or the integer in fractions and multiples, whereby the time of the other notes is expressed.

Semidiapason. A defective octave, or an octave diminished by a minor semitone.

Semidiapente. A defective, false, or flat fifth.

Semidiatessaron. A defective fourth, properly called a false fourth.

Semiquaver. A note containing half the quantity of the quaver.

Semitone. Usually employed to denote a half tone, though it is not, mathematically speaking, the half of a tone. Semitones are moreover of three sorts, the greater, the lesser, and the natural semitone. The use of semitones is to remedy the defects of instruments, which, having their sounds fixed, cannot always be made to answer the diatonic scale.

Senza. Without: as *Senza stromenti*, without instruments.

Sequence. A similar succession of chords ascending or descending diatonically.

Seventh. A Musical interval consisting of three tones, two major semitones, and two minor semitones; at least such is the major seventh, but the minor seventh consists of one tone less. The seventh is composed diatonically of seven degrees and six intervals.

Sforzato. A term written over a note to signify that it is to be played louder than the rest.

Shake. A quick alternate repetition of the note above with that over which it is marked, and commonly ends with a turn from the note below.

Sharp. An artificial note or character thus ♯, which prefixed to a note shows that it is to be sung or played a semitone or half note higher than the note would have been without it.

Signature. The sharps or flats placed after the clef at the beginning of the stave which affect all the notes of the same letter throughout the movement. Those which alter the course of the movement in addition to the others being termed *accidental*, whereas the first mentioned are essential.

Sixth. One of the simple or original concords or harmonical intervals. It is of two kinds, greater and less, and therefore esteemed one of the imperfect concords, though each of them arises from a different division of the octave. The former is composed of six degrees and five intervals, in which four are tones and one a semitone. The lesser sixth is also composed of six degrees and five intervals, whereof three are tones and two semitones.

Skip. The passing from one sound to another by more than a degree at one time.

Slide. A grace used by the German School, consisting of two small notes which move by degrees.

Slur. An arch ⁀ drawn over two or more notes upon different degrees, and signifies that all the notes are to be played as smoothly as possible. In vocal Music it is placed over or under all the notes that are to be sung to the same syllable.

Smorzato. A term to denote that the bow of the violin is to be drawn to its full length, not with equal strength, but lighter and lighter on it by degrees till at last scarcely any sound is heard.

Soave, or *Soavemente.* To be played sweetly or agreeably.

Solfeggio. The system in which the several notes of the scale are distinguished by the syllables *ut*, or *do* of the Italians, *re*, *mi*, *fa*, *sol*, *la*, whose office is, by applying them to every note of the scale, to obtain a pronunciation with ease, and also that by them the tones and semitones of the natural scale may be better distinguished. This is obtained by the four syllables *mi*, *fa*, *sol*, *la*. From *fa* to *sol*, and *sol* to *la*, and from *la* to *mi*, are each a semitone, without noticing the greater or less tone, but from *la* to *fa* and from *mi* to *fa* only a semitone. If these be applied in the following order, *fa sol*, *la fa*, *sol la*, *mi fa*, they express the natural series from C, and if repeated, a second or third octave; and we can by them express the whole of the different orders of tones and semitones in the diatonic scale, *fa*, *sol*, *la*, still standing above *mi*, and below it the same inverted *la*, *sol*, *fa*, and one *mi* is always distant from another an octave, which cannot occur with any of the rest, because in ascending after *mi*, *fa*, *sol*, *la*, *fa* always come in, which in descending are repeated inversely. The use of this system is this:—The first step in learning to sing is to raise a scale of notes by tones and the semitones in their natural places an octave, and descend again by the same, and then to ascend and descend by skips, as thirds, fourths, &c., and to do the same whatever be the pitch of the scale. Now these notes being represented by lines and spaces to which the above syllables are applied, and the learner taught to name each line and space thereby, is the system of Solfeggio. By it we learn to time the degrees and intervals of sound expressed by notes on a line or

space, or give words to Music to which none have been written by means of articulate sounds, but chiefly by an acquaintance with the degrees and intervals expressed by those syllables, we readily know the place of the semitones and the true distance of the notes.

Sostenuto. Used to express that the piece is to be performed in a mournful manner. It also means with care and accuracy.

Sopra. See *Sotto.*

Soprano clef. The C clef used for the voices of females and children. In Italy and Germany it is the clef in general use for the harpsichord; when placed on the first line it is called simply the soprano clef, but if it be placed on the second line it is called the mezzo soprano.

Sostenuto denotes that the sound is to be held on in an equal steady manner.

Sotto. Below, inferior, in contradistinction to *Sopra* above.

Space. The void between any two lines of the staff whereon a piece of Music is pricked or noted. In ancient Music three spaces and four lines only were used.

Spirito, or *Spiritoso.* To be played with vigour or spirit.

Staccato denotes that the Music to which it is applied is to have every note divided or separated from the next, in a plain and distinct manner.

Staff. The five lines on which, with the intermediate spaces, the notes of Music are written; said to have been introduced by Guido.

Stem. The notes of Music consist generally of two parts, the head and the stem; the former is either open or black, and must always be placed on a line or space, the stem is the line drawn from it either upwards or downwards at pleasure.

Subdominant. The fifth below the key note, or fourth in ascending, being as it were the governing note, because it requires the tonic to be heard after it in the plagal cadence.

Subito. Quick, hastily; thus *Volti subito*, an Italian phrase written at the bottom of a leaf, means turn the leaf quickly.

Submediant, or middle note between the tonic and subdominant descending; it is the greater sixth in the major scale, and the lesser sixth in the minor scale.

Subsemitone. A word used by the Germans for the leading note or sharp seventh of the scale.

Substitution, Chords of. Names given to the two chords of the ninth major and minor.

Superdominant. The sixth of the key in the descending scale.

Supertonic. The second above the key note. In theory, it is considered a variable sound, being a comma higher in the major scale than in its relative minor.

Supposed bass. That bass in which the root of the harmonic triad of the chord is not the lowest note; by others it is called the inversion of the accompanying chord.

Supposition. The use of two successive notes of equal value as to time, one of which being a discord supposes the other a concord. There are several kinds of supposition: first, when the parts proceed gradually from concord to discord, or on the contrary, from discord to concord, the intervening discord serving merely as a transition to the following concord.

Suspension. The holding on of a note.

Syncopation. A striking or breaking of the time whereby the distinctions of the several times or parts of the measure is interrupted. But it is more particularly used for the connection of the last note of a bar with the first of the following one, so as to make only one note of both; and it is also sometimes used in the middle of a measure, likewise when a note of one part ends or terminates in the middle of the note of another; this is, however, also called binding or ligature. Syncopation is also used for a driving note; that is, when some shorter note at the beginning of a measure, or half measure, is followed by two, three, or more longer notes before any other occurs equal to that which occasioned the driving note to make the number even, thus when an odd crotchet comes before two or three minims, or an odd quaver before two or more crotchets.

Syncope. Signifies the division of a note; employed when two or more notes of one part answer to a single note of one or the other, as when the semibreve of the one answers to two or three notes of the other.

System. A compound interval, or one composed or conceived to be composed of several less; thus the octave is a system. See *Diastem.*

Tablature. The use of letters of the alphabet, or any other characters, to express the sounds or notes of a composition. It is not usual in modern Music. In a stricter sense, it is the method of writing Music for a particular instrument on parallel lines each of which represents a string of the instrument. On these certain letters of the alphabet are placed, whereof A shows that the string is to be struck open, B that a finger is to be put upon the first stop, C on the second, D on the third, and so on through the octave.

Tacet. Signifies that the part to which it is prefixed is to be silent.

Tardo. Slow, much the same time as largo.

Tasto. The touch of any instrument by means of which its notes are made to sound. The words *Tasto solo* are put to thorough basses, to denote that the instruments accompanying are merely to strike the single sounds from that place till they find figures again, or the word *accords* or *accompaniments* placed in their part which intimate that there the chords are to be begun.

Temperament. The arrangement of the imperfect concords in instruments whose keys are fixed by transferring to them part of the beauty of the perfect, or in other words, by subdividing the redundant comma so as to distribute it over the scale.

Tempo. Merely the Italian word for time. For *Tempo d'imbroglio*, see *Imbroglio.*

Tenor. The first mean or middle part, which is the ordinary compass of the human voice when neither raised to a treble nor depressed to a bass. It is denoted by the C clef on the fourth line.

Tenth. An interval consisting of nine degrees and five spaces.

Tetrachord. In ancient Music, a concord consisting of three degrees or intervals, and four terms or sounds, formerly called diatessaron. The octave has been considered as composed of two fourths which are disjoined or separated by a tone. Theory, however, does not allow the perfect mathematical equality of the fourths in respect to the places of the tones which compose them.

Thesis. The depression of the hand in beating time.

Third. An imperfect concord resulting from a mixture of two sounds containing two degrees or intervals, and three terms or sounds. It is of two sorts, major and minor; the first is composed diatonically of three terms or sounds containing two degrees or intervals on fixed instruments, and the minor third is composed of three degrees, and contains a tone and a diatonic semitone between the extremes.

Time. The duration or continuity of a sound or note as to its proportion of a bar or measure.

Tone. A certain degree or interval of time whereby a sound may be raised or depressed from one extreme of a concord to another. Tones arise out of the simple concords and are equal to their differences.

Tonic. The key note, or chief sound, upon which all regular melodies depend and with which they all terminate. All its octaves above and below are called by the same name.

Transition. The breaking a greater note into a less to smooth the roughness of a skip by a gradual passage to the following note.

Transposition. The change of a melody into a higher or lower pitch. Any melody in a major scale may be transposed into any other major scale by altering the signature according to the pitch of the new key. The same may take place with melodies in minor keys. When, however, a melody originally major is performed in the relative minor key, it is called variation and not transposition.

Treble. The highest or acutest part of the human voice, usually sung by females or by children.

Tremando and Tremolo. To denote that several notes of the same degree or pitch of tune are to be executed with one draw of the bow so as to produce an effect of shaking.

Triad. See *Harmonic triad.*

Triple. One of the kinds or measures of time, of which there are many species, but in all of them there is a division of the measures into three parts; as for instance, into three minims, three crotchets, three quavers, and so on. Three, or its multiples, being always the denominator of the fraction placed after the signature at the beginning of the staff.

Triplets. Groups of three notes each grouped by uniting the stems at the bottom.

Tritonus, or *Tritone.* An interval consisting of three tones, or a greater third and a tone major, which tone is divided into two semitones, one major the other minor. The tritone is a sort of redundant third, consisting of three tones, whence its name; or more properly of two tones and two semitones, one greater and one less, as from C to F♯ or E to B♭. It is not, in truth, as it is often erroneously called, a greater or sharp fourth, because the fourth is a perfect interval, and has no majority nor minority, nor must it be confounded with the defective fifth, inas-

Music.

much as the tritone only includes four degrees, whereas the defective fifth contains five, besides which, among the six semitones which compose the tritone chromatically, there are three greater and three less, whereas in the defective fifth there are two less and four greater semitones.

Tie. An arch ⁀ drawn over two notes on the same degree.

Tune. That property of sounds whereby they come under the relation of acute and grave towards each other.

Turn. A grace ∾ marked over a note which indicates that a note one degree higher is to be struck before it shortly, and passing quickly through the note itself, turn from the note a degree below into the note itself.

Tutti. As opposed to *solo*, in which only one part plays, means that all the parts are to play together.

Uncommon chord. The chord of the sixth, not so called because unusual or improper, but in contradistinction to the common chord, or that on which the lowest note is the fundamental bass.

Unison. The effect of two sounds equal in degree of time or in point of gravity and acuteness. Or a consonance of two sounds produced by two bodies of the same matter, length, thickness, tension, &c. equally struck so that they yield the same tone or sound.

Ut. The name of the first of the Musical syllables, to which the French added a seventh, which is called *si*.

Variation. See *Transposition*.

Veloce. Quick, nearly the same as *Vivace*.

Vigoroso. Denotes that the movement is to be performed with vigour and strength.

Vivace. With life and spirit. It is a degree of movement between largo and allegro, but nearer to allegro than largo.

Volti. See *Subito*.

Music.

LIST OF SOME OF THE CHIEF WORKS ON MUSIC.

A. D.

1474. Tinctor Terminorum Musicæ Definitorium, Naples.
1480. Gafurius, (Franchinus,) Theoricum opus, 1480, 1492; Practica Mus. 1496, &c.; Harmonica, 1500.
1482. Ramis, (Bartholomeo de Pareia,) De Musicâ Tractatus, Bononiæ.
1487. Burtius, (Nicolas,) Musices Opusculum, Bononiæ.
1503. Boetii Opera, B. L. fol. Paris.
1512. Wollicus. (N.,) Enchiridion Musices, Paris.
1516. Aron, (Pietro,) Institutio Harmonica, Bononiæ.
1529. Rossetti, (B.,) de Rudimentis Musices, &c. Verona.
1533. Vanneo, (Stephano,) Recanetum de Musica Aurea, Roma.
1547. Glareanus, (Hen. Lor.,) Dodecachordon, Basil.
1555. Thyard, (Ponce de,) Solitaire Second, ou Prose de la Musique, Lyons.
1557. Euclidis Rudimenta Musices Gr. et Lat. Parisiis.
1558. Zarlino, (Giuseppe,) Institutioni Harmonichi, Venet. fol.; also in 1562, 1573, 1589; Dimostrazioni, 1571, 1589.
1563. Sebastiani Bellum Musicale, Argent.
1571. Nicolaus, (Elias,) Orgeloder Instrument Tabulatur, Leipzig.
1577. Salinas, (Franciscus,) De Musica, fol.
1581. Galilei, (V.,) Dialogo della Musica, Fiorenze.
1582. Yssandron, (Jean,) Traité de Musique Pratique, Paris.
1596. Zacconi, (F. L.,) Prattica di Musica, Venet. fol.
1597. Morley, (Thomas,) Introduction to Music, 4to., Lond.
1604. Reinhard, (Andreas,) Musica, small 8vo. Lipsiæ.
1609. Ornithoparcus, (Andreas,) Micrologus, translated by Dowland.
1612. Viadana, (Ludovico,) Opus Musicum Sacrorum Concentuum.
1613. Cerone, (R. D. Pietro,) El Melopeo y Maestro, Napoles.
1627. Mersenne, (Martin.) under the name of De Sermes, Harmonie Universelle, 8vo.
1630. Bartoli, (P. D.,) Del Suono de' Tremori Armonici e dell' Udito. Bologna.
1631. Picerli, (Silverio,) Specchio Secondo di Musica, Nap.
1636. Butler, (Charles,) Principles of Music, small 4to. London.
1648. Doni, (Gio. Battista,) Annotazioni sopra il compendio, 4to. Roma.
1650. Kircher, (Athanasius,) Musurgia Universalis, fol. Roma.
1652. Meibomius, Antiquæ Musicæ Auctores, 2 vols. 4to. Amst.
1652. Matthai (Conrad,) Bericht von den Modis Musicis, Kænisberg.
1656. Descartes, Musicæ Compendium, Amst.
1658. Gassendi Miscellanea Manuductio ad Theorem Mus., fol. Lug.
1664. Alstedius, Templum Musicum, by Birchensha.
1665. Playford, (John,) Introduction to the Skill of Music, 8vo.
1666. Rossi, (Lemme,) Sistema Musico, 4to. Perugia.
1667. Simpson, (Christopher,) A Compendium of Practical Music, 8vo. London.
1668. Bononcini, (M.,) Musico Prattico.
1670. Mengoli, Speculationi di Musica, Bologna.
1672. Lorente, El Porque de la Musica, fol. Alcala.
1672. Salmon, (Thomas,) Essay to the Advancement of Music, Lond.
1676. Mace's Musick's Monument, fol.
1678. Smith's (Theod.) Musical Directory.
1682. Ptolomæi Harmonicorum, lib. iii. Gr. et Lat. 4to. Oxonii.

A. D.

1685. Scaletta, (H.,) Scala di Musica, fol. Roma.
1687. Berardi, (Ang. da S. Agatha,) Documenti Harmonici, 4to. Bologna.
1694. Holder, (Dr. William,) A Treatise on the Natural Grounds and Principles of Harmony, 8vo.
1695. Bontempi, (Gio. And. Arg.,) Historia Musica, fol. Perugia.
1696. Prinz, (W. C.,) Satyrischer Componist, 4to. Dresden.
1698. Fokkerodt, (John Arnold,) Musikalischer Untericht Mühlhausen, part ii. 1716, part iii. 1718.
1698. Loulie, Elémens ou Principes de Musique, Amst.
1701 Janowka, (Thos. Balthazar,) Clavis ad Thesaurum Magna Artis Musicæ, Alt Prag.
1706. Tevo, (Zacharia,) Il Musico Testore, 4to. Venezia.
1708. Gasparini, (Francesco,) L'Armonico Prattico al Cimbalo, Ven.
1710. Henfling, (Conrad,) Specimen de novo suo Systemate Mus., in the Berlin Miscellany, vol. i. part iii. p. 265—294, 4to.
1713. Mattheson, (John,) Orchestre der Vollkommene Kapellmeister, fol. Hamburg.
1721. Malcolm, (Alex.,) A Treatise on Music, 8vo. Edinburgh.
1722. Bonnani, (F.,) Gabinetto Armonico.
1722 Rameau, (Jean Phil.,) Traité de l'Harmonie, 4to. Paris.
1724. Turner, (William,) Sound Anatomized in a Philosophical Essay on Musick, Lond.
1725. Fux, (John Joseph,) Gradus ad Parnassum, fol. Vienna.
1725. Chateauneuf, Dialogue sur la Musique des Anciens, 12mo. Paris.
1731. Pepusch, (John Christopher,) A Short Treatise on Harmony. oblong 8vo. Lond.
1732. Walther, (John,) Gottfried Musikalische Lexicon, 8vo. Leipzig.
1735. Burette, (P. J.,) Dialogue de Plutarque, trad. du Grec, 4to.
1737. Lampe, (John Fred.,) Method of Teaching Thorough Bass, 4to. Lond.
1739. Euleri tentamen novæ Theoriæ Musicæ, 4to. Petrop.
1740. Grassineau, (James,) A Musical Dictionary, 8vo. London.
1741. Le Beuf, (L'Abbé,) Traité Historique et Pratique sur le Chant Ecclésiastique, 8vo. Paris.
1742. Blanchini de Instrumentorum Musicæ Veterum, Rom.
1743. Bourdelot, Histoire de la Musique, 4 vols. Frankfort.
1746. Tansur, (Wm.,) Musical Grammar, Lond.
1749. Geminiani, (Francesco,) Treatise on Good Taste, fol.
1749. Smith, (Dr. R.) Harmonics, or Philosophy of Sounds, 8vo. London,
1752. D'Alembert, (Jean le Rond,) Elémens de Musique, Paris. Lyons, 1762.
1753. Avison, Essay on Musical Expression, 8vo. Lond.
1753. Bach, (Charles Philip Emanuel,) Versuch über die wahre Art das Clavier zu spielen, 1753, 1759, 1780.
1754. Bethisy, (M. de,) Exposition de la Théorie, &c. 8vo. Paris.
1754. Riepel, (Joseph.) Anfangsgründe, &c. fol. Ratisbon.
1754. Tartini, (Giuseppe.) Trattato di Musica, 4to. Padua.
1755. Nichelman, (Christopher,) Die Melodie, 4to. Dantzig.
1755. Marpurg, (Fred. Wm.,) Handbuck bey dem General Bass., 1757, 1762.
1758. Adlung, (M. Jacob,) Anleitung au den Musikalischer Gelahrtheit, 8vo. Erfurt; new edition, 1783, by Hiller.
1761. Antoniotto, (Giorgio,) L'Arte Armonica, fol. London.

Music.

A. D.

1764. Roussier, (M. l'Abbé,) Traité des Accords, 8vo. Paris.
1767. Blainville, Histoire Générale de la Musique, Paris, 4to.
1768. Rousseau, (Jean Jaques,) Dictionnaire de Musique, Paris.
1770. Holden, (John,) An Essay towards a Rational System of Music, oblong 4to. Glasgow.
1771. Bemetzrieder, Leçons de Clavecin, et Principes d'Harmonie, 4to. Paris.
1773. Sulzer, (John George,) Allgemeine Theorie der Schönen Kunste, large 8vo. 2 vols. Leipzig.
1774. Laags Clavier Spielen und General Bass, Osnabruck.
1774. Eximeno, (D. A.,) Dell Origine e delle Regole della Musica, 4to. Rom.
1774. Gerbert, (Martin,) De Cantu et Mus. Sacra, 4to. 2 vols.; Script. Ecclesiastici, 4to. 3 vols, Typ. San Blas.
1774. Kirnberger, (John Philip,) Die Kunste des Reinen satzes, 4to. Berlin.
1774. Martini, (Il Padre Giambattista,) Saggio di Contrappunto, &c. 2 vols. 4to. Bologna.
1776. Hawkius, (Sir John, Knight,) A General History of the Science and Practice of Music, 5 vols. 4to. Lond.
1776. Burney, (Charles, Mus. Doc. Oxf.,) A General History of Music, 4 vols. 4to. 1776 to 1789, London.
1776. Mercadier, (De Belesta,) Nouveau Système de Musique, 8vo. Paris.
1779. Vallotti, (Franc. Ant.,) Scienza Teorica e Pratica della Moderna Musica, 4to. Padova.
1780. Hiller, (J. A.,) Musikalische Richtigen Gesange, 4to. Leipzig.
1780. Borde, (M. de la,) Essai sur la Musique, 4 vols. 4to. Paris.
1781. Catalisano, (Genaro,) Grammatica Armonica, Roma.
1782. Petri, (John Samuel,) Anleitung zur Pratischen Musik, 4to. Leipzig.
1782. Maxwell, (Mr.,) Essay on Tune, 8vo. London.
1782. Pizzatti, (Giuseppe,) La Scienza dei Suoni, small 8vo. Venice.
1784. Jones, (Rev. Wm., of Nayland,) A Treatise on the Art of Music, Colchester.

A. D.

1784. Keeble, (John,) The Theory of Harmonics, 4to. London.
1789. Turk, (Dan Gottlieb,) Klavierschule, Leipzig.
1791. Framery, (Nicolas Etienne,) Encyclopédie Méthodique, 3 vols. Paris, 1791 to 1818.
1793. Frike, Guide in Harmony, oblong fol. Lond.
1794. Sala, (Nic.,) Regole del Contrapunto Pratico, fol. Napoli.
1795. Harrison, Universal Dictionary of Music.
1796. Gretry, Mémoires, ou Essai sur la Musique, 3 vols. 8vo. Paris.
1796. Kollman, (A. C. F.) Essay on Musical Harmony, fol.
1798. Requeno, (Vinc.,) Saggi sal Ristabilimento dell' Arte Armonica de Greci e Romani Cantori, Parma.
1799. Kollman, Essay on Musical Composition, fol.
1800. Shield, (William,) Introduction to Harmony, 4to. London.
1800. King, (M. P.) General Treatise on Music, particularly on Harmony or Thorough Bass, and its application in Composition, fol. Lond.
1801. Langle, (H. F. M.,) Nouvelle Méthode pour chiffrer les Accords, 8vo. Paris.
1802. Koch, (Hen. Christ.,) Musikalisches Lexicon, 2 vols. large 8vo. Frankfort.
1802. Kalkbrenner, Histoire de la Musique, 8vo. Paris.
1802. Sabbatini, (Quigi,) Trattato sopra le Fughe Musicali, 2 vols. 4to. Venezia.
1802. Catel, Treatise of Harmony.
1803. Gunn, (Mrs. Anne, late Miss Young,) Introduction to Music, 8vo. Edinburgh.
1806. Momigny, Cours complet d'Harmonie et de Composition, d'après une Théorie Nouvelle, 3 vols. 8vo. Paris.
1808. Choron, (M.,) Principes de Composition des Ecoles d'Italie, trad. de l'Italien de Sala et autres, 3 vols. 4to. Paris.
1809. Callcott, (Dr.,) Musical Dictionary, small 8vo. London.
1812. Crotch, Elements of Musical Composition.
1814. Choron, (M.,) Méthode Elémentaire de Composition, trad. de l'Allemand d'Albrechtsberger, 2 vols. 8vo. Paris.
1816-17. Berton, (H. Montan,) Traité d'Harmonie, suivi d'un Dictionnaire des Accords, 4 vols. 4to. Paris.

Music.

ENGRAVING.

By the Rev. John Lindsay, M.A., Vicar of Stanford.

CONTENTS.

	Page
Definition of Engraving and earliest Methods of the Art	780
Of Prints	782
Varieties of Engraving	782
Principles of Line Engraving	782
Xylography, or Wood Engraving	786
Two Ancient Schools of Engravers on Wood	787
Old School of Italy	787
German School of Wood Engravers	789
Invention of Types suggested by Xylography	789
Stensilled Prints	791
Instruments and Materials employed in Xylography	793
Chalcography	794
I. Engraving in the Line manner	795
Early School of Italy, with the graver only	795
Old German School of Chalcography, with the burin only	799
Modern School of Germany	801
Dutch and Flemish Schools, with the burin only	802
French School in simple Chalcography	804
Spanish and English Burinists	807
II. Engraving with the Dry Point	808
III. Etching	809
Compound Chalcography	810
Wood Blocks applied to Copperplate Impressions	810
Works of the Burin combined with the Etching Needle and Dry Point	811
1. Works in which Etching is merely a Basis	811
2. Works in which Etching predominates	811
Italy:—First Class of Compound Engraving	812
Second Class of Compound Engraving	812
Germany: First Class of Compound Engraving	813
Second Class of Compound Engraving	814
Flanders and Holland:—First Class of Engraving	815
Second Class of Engraving	815
France:—First Class of Compound Engraving	817
Second Class of Compound Engraving	818
England:—First Class of Compound Engraving	821
Second Class of Compound Engraving	823
Opus Mallei, or Method of Engraving by the Punch and Mallet	824
Of Scraping in Mezzotinto	824
Mezzotinto printed in Colours	826
French Method for Chalk Engraving	826
English method by Dotting	827
Aquatinta, or Imitation of washed Drawings in Bistre	827
Aquarilla, or Imitation of Drawings washed in different Colours	828
Lithography	828
Notes on Engraving.	831
A. Intaglio—Die Engraving	831
B. The Burin described	831
C. Ancient Stereotype. Branding. Ink	832
D. Good Handling	833
E. Discrimination of Stuffs by Handling	833
F. Handling of Rough Objects	834
G. Hatchings and other Lines	834
H. References to Ancient Engraving	834
I. Chinese Engraving	835
K. Chinese and early German Wood Engravers	835
L. Early Woodcut (date 1423)	836
M. Printing Inks	836
N. The Cunio Family	836
O. Sacred Dyptics	837
P. Engraving in Chiaroscuro	837
Q. Cardmakers the earliest Xylographers	837
R. Bihlia Pauperum	838
S. Invention of Fusil Types	838
T. Execution of early works involved in mystery and kept secret	838
U. V. W. X. Xylographic Monograms	839
Y. Papillon's Instruments.	840
Z. Catalogue of Spanish Engravers	840
A. A. Preparation of Copperplates for Engraving	841
B. B. Process of Etching explained	841
C.C. Instruments for Punching	843
D. D. E. E. Process of Mezzotinto Engraving	843
F. F. Method of producing Coloured Mezzotintos	844
G. G. H. H. Chalk Engravings, or Dotted Etchings	845
I. I. Preparation of Engravings in Aquatinta	845
K. K. Preparation of Aquarillas	847
L. L. Lithography	847
Principles of the Art	847
Preparation and Quality of the Stone	847
Materials for Drawing on the Stone	847
Instruments and Precautions	848
Practice of Lithographic Drawing	848
Lithographic Printing	849
M. M. Compound Lithography	850
References to Plates of Monograms	850

Plate I. Engravers' Tools, Printers' Presses, &c.
II. The Art of Engraving in Metal, exemplified in Six varieties.
III. and IV. Monograms of Engravers.

ENGRAVING.

Engraving.

Definition of Engraving, and earliest Methods of the Art.

Earlies. Methods.

ENGRAVING is an Art allied to Sculpture as well as to Painting, but more especially to the latter, ever since the invention of multiplying impressions upon paper. In its ancient and more general sense, Engraving may be defined the representation of objects by means of incision on plates of metal, on planks or blocks of wood, on stones, gems, &c. Modern language gives the name more commonly to such lines and characters executed by incision upon wood or metal, as are intended to be communicated to paper in a printing-press; and applies to the impressions thus taken the term prints or Engravings. The same term is used for lithographic impressions, while those taken from wood are sometimes called wood-cuts.

The Art defined.

The word Engraving, however, is still used according to its primitive meaning, to denote certain branches of the Art which, from their utility, as well as from their hold upon the vanity of mankind, are never likely to be lost, and which have descended to us from the remotest antiquity, such as Gem Engraving, Seal Engraving, and Die Engraving.

Its antiquity.

(1.) As an introduction to the present subject, some notice may be expected to be taken of these anteeedent and partly sculptural inventions. Their origin belongs to the earliest date of human civilization, and they doubtless led the way in contributing to suggest further discoveries; until, in fulness of time, that of Printing burst forth, meteor like, upon the world, and seemed to render every other light or key to knowledge dim, subordinate, and comparatively inoperative. We must content ourselves however with referring to the words CAMAIEU and INTAGLIO in our *Miscellaneous Division*; and with adding here only a few particulars as to the method by which the Gem Engraver proceeds, and the instruments with which he works. Whether, according to the opinion of Winkelmann, or of his ingenious contemporary Natter, (in a Treatise *De la Méthode Antique de graver en Pierres fines comparée avec la Méthode Moderne*, Lond. 1754. fol.) the tools of modern artists are similar to those used in ancient Art, may be still a question. But there can be no doubt that, in order to clear ideas on the subject of this or any other Art, some acquaintance with the mechanical means and implements employed is absolutely requisite.

Gem Engraving.

(2.) After the stone or other material has been shaped and polished, the outline is drawn on the upper or convex side * with a brass needle or with a diamond; and the underside is fastened by a cement of mastic to a wooden handle in such a manner as to be held with ease in any direction, and applied with accuracy to the different tools for cutting it. The first of these which we select for explanation is a cylindrical tube, (see plate i. fig. 1,) of which the sharpened extremity at A is used for describing circles and for perforating. The other extremity B C is a triangular prism made to be inserted horizontally into the axis of a revolving piece of steel, called a mill, which is kept in rotatory motion by means of a common lathe. Fig. 2 is another tool furnished at one end with a knob or round button, and having the other constructed like the last for insertion in the mill, and for revolving also on the same horizontal axis. The French name for this tool is *boute rolle*. By varying the form of the button at D, (fig. 2,) other tools are produced. In some the button takes a disk-like form, rounded at its edge. (Fig. 3.) In others the disk is square at its edge, (fig. 4,) and in others sharp. (Fig. 5.) To the latter instrument the French give the name *scie*. It resembles, in fact, a small circular saw.*

(3.) Fig. 6 gives an illustration of the manner in which the stone or gem is applied to the tool while the latter, previously dipt in a mixture of diamond-powder with olive-oil, is kept in revolution by the lathe. The larger tools are employed for the commencement, and the smaller for finishing. Care must be taken at all times in working seals or intaglios, not to place the stone in such a direction against the tool that the upper portion of the excavated work may overhang in any the slightest degree the parts below intended to be prominent in the impression. No proper impression can, in such a case, (causing what Italians call *sotto quadro*,) be produced.†

Seal Engraving.

(4.) For a description of the various materials upon which the Gem Engraver exercises his Art, we refer to MINERALOGY in the *Second Division* of this Work; and only remark here, that the stone called carnelian (sarda)

* A convex surface is preferable, since it presents a deeper mass towards its centre, where the principal (and in the intaglio more prominent) objects are to appear. (See PAINTING, Art. 262. No. 2.) The process of shaping and polishing is the business of the lapidary; but the Gem Engraver must, we need scarcely observe, be competent not only to design, but also to model his subject perfectly, and with all its due proportions in clay or wax before commencing the operation above described.

* The size and form of these instruments are of course accommodated by the artist to the several kinds of incision or excavation to be made. Sometimes the extremity D (fig. 2 to 5) is so small as to be scarcely distinguishable by the naked eye. When a tool of a different size or shape is required, the end B C (fig. 1) of the tool in use is drawn out from the mill, like the removable leg of a pair of compasses, and another instrument inserted in its place.

Beckmann observes that the ancient Greek artists formed upon glass both raised and engraved figures, though it is probable that many pieces of glass may have been moulded like paste: for that Art also is of very great antiquity. He refers to two ancient glasses found at Nismes, and described by Caylus, in his *Recueil d'Antiquités*, ii. p. 363, as having figures and ornaments cut upon them. If, says he, we can believe that learned Engraver and Lapidary, the celebrated Natter, the Ancients employed the same kind of instruments for this purpose as the Moderns. They undoubtedly had, in like manner, the wheel which writers term a lapidary's wheel, and which moved round on a horizontal axis above the work-table. If this conjecture be true, he adds that it explains, very intelligibly, a passage in Pliny respecting the various ways of preparing glass. *Aliud flatu figuratur, aliud* TORNO *teritur, aliud argenti modo cælatur*, lib. xxxvi 26. p. 758.

† When the work is completed, the Engraving is next polished, by being brought in contact with boxwood tools, kept in rotatory motion, like the others, by the mill, and dipped in emery or tripoli-powder wetted, or in rotten stone. These polishing instruments are sometimes of pewter or of copper; and sometimes consist of hair brushes affixed to wheels, such as fig. 3 or 4, for the purpose.

Engraving.

was a favourite material with the best Engravers of antiquity, since it combined the most delicate and yielding texture with sufficient hardness and with susceptibility of exquisite polish. The same qualities, of course, continue to recommend it, although with respect to polish, antique gems far exceed the utmost efforts of modern workmanship.* The Ancients frequently used ivory also for Cameo Engraving: but none of these works remain to us.

Die Engraving.

(5.) For Die Engraving the process assimilates partly to that for engraving seals, and partly to that for relievo or raised work. The first operation of the artist is to engrave his punches or puncheons, one for each side of the medal, medallion, or coin to be struck. The piece of steel, or of iron mixed with steel called a punch has the intended figure either of a head, or of a reverse engraved in relievo upon it before it is tempered and hardened.

(6.) When this Engraving, or steel cameo is completed by means of chisels, flatters, gravers, &c. (Art. 2.) the punch is tempered, and under it is placed another piece of steel (but in a soft state) called the die, out of which the future matrix, the future *creux*, is to be stamped or hollowed. The punch must be tempered very highly that it may be enabled to bear the blows of the hammer, and the cube or die (*talus*†) is made red hot the better to receive the hollow impression. But the matrix to be complete, requires next its several impressed cavities to be sharpened and retouched; and this is done by the graving instruments (Art. 2.) before mentioned.‡

Lines cut with the graver, sometimes left open.

(7.) Another exercise of the Engraver's Art, perhaps quite as ancient as the foregoing, and frequently combined with it, was that practised by the Egyptians,§ of which Strutt notices some hieroglyphical remains preserved in the British Museum. He alludes to an alto relievo in brass representing Isis. "The flat part, or ground of the relief," he observes, "together with the bottom edges and back part of it, are ornamented with figures and symbolical characters, executed entirely with the graver, without any other assistance. The backs of the crocodiles" (on which the Goddess appears standing) "and the heads of the four-footed animals," (one of which she holds in each hand,) "are also finished with the same instrument in a very careful manner."*

Earliest Methods.

Sometimes filled up with other metal, or with niello.

(8.) To the practice of cutting lines with the graver, was superadded a further process of very great antiquity; that of filling in the lines or excavated parts with some metal of a colour different from that of the engraved plate. Under this variety of the Art may be classed the method called working in niello, practised among the goldsmiths of Europe in the Age of Finiguerra, at the era of the discovery of printing.† The conceit of inlaying one metal with another finds employment for numbers at the present day in Russia, whence we derive continual specimens in the form of knife-handles, snuff-boxes, &c. Sometimes more than two metals are introduced. Evelyn, and after him Strutt, among other authorities for the antiquity of Engraving, quotes the word קלַע *kalaugh*, which is used in 1 *Kings*, ch. vi. ver. 35. to express the hollowing out of the carved work upon the cherubim, palm trees, and open flowering in the sanctuary, which were afterwards *filled up* with gold.‡

(9.) A description of Engraving in niello is thus given by the Count Seratti. "The intended subject was engraved with a burin upon a plate of silver. This was afterwards covered over with niello, (*nigellum*,) which was a metallic substance, or black kind of enamel, reduced to powder, composed of silver, copper, lead, sulphur, and borax, so that it was more easily fusible than silver, and of a dark colour. The necessary degree of heat was then applied, which melting this metallic compound without affecting the silver plate occasioned it to run about until it had filled all the strokes of the Engraving. Lastly, the superfluous part of the niello which rose above the surface of the silver plate was removed by scrapers, files, and pumice-stone, until the even surface of the plate appeared in every part so that the niello only remained in the strokes made by the burin, thus giving to the engraved design its true effect."§

(10.) From the very remote antiquity of this and the foregoing branches of the Art, (see *Miscellaneous Division* for the words CAMATEU and INTAGLIO,) it is quite plain to us that the Ancients possessed all the materials (however rude and unartist-like some of their attempts‖ may seem) for arriving at the same results

* The union of white carnelian (or chalcedony) with red, (see *Miscellaneous Division*, CARNELIAN,) or brown in the same stone has given frequent exercise to all that taste and ingenuity could effect in Gem Engraving. Differently coloured strata, or zones, have been sometimes found so united by nature in one gem as to assist in the happiest manner the purposes of the Cameo Engraver. If, for instance, a white, semi-transparent layer be found above a red layer of carnelian; this red ground will impart a delicate flesh tint to a face executed in raised work out of the white surface. Again, if a stratum of white be situated between one of red and brown, or between one of red and any other colour, the brown, or other colour may be converted, with pleasing effect, into drapery, animals, chariot-wheels, &c. In some extraordinary gems of this kind no less than four different layers are seen distinctly formed, of each of which the artist has effectually availed himself by accommodating his design to the caprice of Nature.

† Skinner derives *talon* (claw of a bird of prey) from *talus, quia precipuum istarum avium robur in* talo *seu calcaneo consistit.* If this etymology be admitted, the derivation of the Italian words *intaglio* and *intagliare* will be found in the action of the bird's foot *clawing* the earth, or scraping, scratching, and *cutting* into any object.

‡ See Note (A.) at the end of Engraving.

§ Strutt brings the Art from Egypt into Phœnicia, and thence to Greece, where in Homer's time, as we learn from the shield of Achilles, it must have been most successfully and tastefully cultivated. But the palm of excellence, prior to either Egyptian, Phœnician, or Grecian Art, has been conceded to Etruria. Out of the Etruscan antiquities for which the British Museum is indebted to Sir William Hamilton, Strutt, in his Dictionary, gives two engraved specimens extremely curious.

* See Note (B.) at the end of ENGRAVING.

† The Abbé Lanzi (*Storia Pittorica*, vol. i. p. 130.) calls Engraving in niello. *artifizio antichissimo frequentato nel secolo* XV, *specialmente in Firenze, caduto in dimenticanza, nel susseguente malgrado le diligenze del Cellini per mantenerlo.* He then goes on to show its uses. It was employed for the embellishment of all movables in silver, as well objects of sacred value, chalices, missals, and other books of Religion, depositories of relics and paxes,—as for profane purposes, upon sword handles, armour, table services of plate, bracelets, and other ornaments of dress. It was also much in vogue for a sort of cabinets of ebony, adorned in different ways, with small images in silver, and small plates tastefully worked in niello, representing historical groups of figures or wreaths of flowers.

‡ Evelyn's *Chalcography*, p. 18, and Strutt's Essay *On the Origin and Progress of Engraving*, p. 8, at the end of vol. i. of his *Dictionary of Engravers.*

§ Cellini (*Trattato del Oreficeria*, cap. ii. p. 24.) remarks upon the great care to be taken in cleansing the plate previously to the application of the niello. The plate was to be purified from all grease and dirt by an operation termed among goldsmiths *la cenerata, i. e.* boiled in clean water mixed with oak ashes for a quarter of an hour, then taken out and thoroughly washed in clean water with a small brush.

See a Dissertation by Count Seratti on the sulphur in his possession, a Work of Maso Finiguerra, quoted by Mr. Ottley, p. 270 of his *History of Engraving.*

‖ Strutt has engraved from the Hamiltonian collection of Etrus-

Engraving.

with their modern glyptic followers, who have not unfrequently claimed the honour of original discovery for what more justly might be termed sagacious adaptation.*

Of Prints.

The first prints were impressions from wood.

(11.) The earliest engraved works intended for impressions in ink were of wood. The Art of printing BLOCK BOOKS, (so called from each page being printed from one block,) long practised by the Chinese, appears to have travelled Westward to Europe, along with the introduction of the silk-worm, the invention of playing cards, &c., or perhaps even of gunpowder and the magnet, and to have been adopted by the monks of the XIIIth Century for diffusing their religious tenets in pictures, just as, throughout the Dark Ages, they invented godly plays, called Mysteries or Moralities, to rival the *drami profani* of the minstrels, mummers, (*mimi*,) or bards.† Together with these pictures of Saints, and sacred events, short legends in verse, or appropriate passages from Scripture, were engraved upon the same block. When afterwards other means and other substances were tried, the varieties of mechanical execution and of pictorial effect increased in proportion.

(12.) M. Adam Bartsch, author of the *Peintre Graveur*, a Work of great value to collectors, in twenty-one octavo volumes, enumerates thirteen classes of Engraving.

Engraving. Its varieties.

1. Chalcography, or Engraving, properly so called,‡ executed with a graver.
2. Engraving with the dry-point.
3. Etching.
4. Etching finished with the graver.
5. Dotting or stippling, performed with a punch (*mit der goldschmits punze*) and mallet.
6. Scraping, or the dark method called mezzotinto, practised chiefly in England.
7. Engraving in different colours, or Le Blon's method.
8. French method or chalk Engraving.
9. English method by dotting. (*La manière pointillée.*)
10. Method for giving the effect of bistre, or Indian ink. (*Aquatinta, ou la manière de bistre.*)
11. Method by coloured washes. *Manière (à l'aquatinta) de lavis de différentes couleurs.*§

12. Xylography,* or Wood Engraving, (*gravure en bois,*) and its varieties.

Modern Methods.

13. Lithography and its varieties.†

Three branches of Engraving.

The above enumeration, while it shows our subject to be of such extent as must be our apology for giving no more than a very brief account of each process, suggests, at the same time, an improved arrangement, which we propose to follow. Three sorts of material are here spoken of; *wood*, *metal*, and *stone*. We consequently divide the Art into three branches, XYLOGRAPHY, CHALCOGRAPHY, and LITHOGRAPHY. And the modes of operating upon each material are twofold, *viz.* either,

1. By some one of the varieties above-mentioned, (particularly Nos. 1. 2, 3, 12 and 13.) To this mode we give the name of *simple* process. Or,

2. By a union of two or more varieties. For this we propose the title of *mixed* or *compound* process.

In Wood Engraving, for example, by simple process we would be understood to mean the use of only one block for one complete impression. By compound process we imply the use of two or more blocks; or of some additional apparatus, such as was required in the infancy of the Art, for the completion of a print by stensilling.‡ In Chalcography, or Engraving on metal, we call each of the first three methods in the above list a simple process; while to almost all the remainder (namely, from No. 4 to No. 11 inclusive) we give the epithet of compound. And lastly, in the case of Lithographic prints, we would term that a simple process where only one stone or slab is required: but call the use of two or of several by the title of compound Lithography.

Engravers have certain principles of Art in common with Painters.

(13.) But before we undertake to trace to their origin, and to particularize the different methods and materials of Engraving in reference to ink-impressions upon paper; it will be proper to state some general rules to which every branch of the Art must alike be subject.

---

can antiquities in the British Museum two extremely curious and valuable specimens of ancient Engraving. They form a frontis-piece to the 1st Volume of his *Dictionary of Engravers*. One of them is part of the sheath of a parazonium or dagger. The original is eight inches and a half long, more than three wide at the top, and decreases gradually to an inch and a quarter at the bottom. Two historical subjects, of exceedingly rude workmanship, supposed from the *Iliad*, are engraved upon it. The figures are executed with the graver only upon a flat surface, and need only to be filled with ink and run through a printing-press, provided the plate could endure the operation to produce a fair and perfect impression. The other specimen, observes Mr. Strutt, is greatly superior in workmanship to the former. It is a patera, or instrument used by the priests in their sacrifices. Under each of the two figures upon it is an inscription in the Etruscan character; the figures are carved in low relief, but the hair of the woman, the ornamental parts of the drapery, and the smaller folds, are evidently the work of the graver only. M. D'Ankerville's eulogium on this relic is, that it is the richest and most remarkable remnant of antiquity, and of all the Etruscan bronzes, the best executed and most happily preserved.

* See Note (C) at the end of ENGRAVING

† See our *Miscellaneous Division* for the words BARD, MINSTREL, MUMMER.

‡ From χαλκὸς, copper, and γράφω, I inscribe.

§ All these effects, including those of the preceding nine methods, are now as completely and almost as easily practicable from steel plates as from copper.

* From ξύλον, wood, and γράφω, I inscribe. The propriety of the term Wood Engraving has been disputed by some *chalcographers*, who, with a view to distinction as cutters of copper, prefer the term wood-cutting. But besides that the graver or burin is an instrument in constant use among artists in wood, there is no absurdity more grievous than to suppose the real merit or rank of an artist to consist in the kind of vehicle he uses. To this absurd pride many a suppressed invention is probably attributable. Engraving on copper was undervalued at the period of its discovery in Italy, till the persevering German mechanists invented the press. A kind of similar rivalry seems in this Country to have subsisted between painters in oil and in water colours, which has ended in a series of unforeseen trimmphs for the latter.

† From λίθος, a stone, and γράφω, I inscribe.

‡ A stensil (anciently called pattern, or stanefile, see *Phil. Trans.* for 1709, No. 310 p. 2397.) is a thin plate of tin or other metal, and sometimes a piece of card or thick vellum, with holes in it cut to the shape of objects: so as that when it is laid over any print, the paper underneath the stensil receives from the brush of the operator a wash of colour through the perforated parts. Mr. Singer, in his *History of Playing Cards*. p. 179, quotes from Breitkopf the method practised by the briefmahlers. They pasted an impression of their print on pasteboard, and cut out all the parts which were to receive the same colour. For the whole work they accordingly required as many pieces of pasteboard, called *patronen*, (stensils,) as there were colours in the design. The colours thus laid on contributed to finish the picture and supplied frequently the form of many parts which were not expressed by the lines of the wood-cut. Probably some of our readers will recognise the similarity of this process to a method of drawing called *oriental tinting*, recently much in fashion and in which stensils are used.

A third variety of the mixed or compound class might be here introduced, namely a sort of chiaroscuro prints by the union of impressions alternately from wood and metal: first printed from a copper-plate and then shaded by wooden blocks; but as this implies a previous acquaintance with engraving or etching in metal, we include it under Chalcography.

Engraving. The Engraver, like the painter, has certain pictorial elements to be carefully studied and pursued, and adhered to, whatever be the vehicle by which he works. Both artists must, it is obvious, begin their course together in the same school of drawing and of chiaroscuro. Both have the same necessity for perfect acquaintance with anatomy and perspective. Both are interested in expressing with truth and vigour, not the outlines only, but the surfaces and texture of bodies; as also the changes which light and air, in their innumerable modifications, unfold to the observer of Nature.* Engraving may not inaptly be called the translation of Painting into a language of which the phraseology is, in many instances, the same as the original; but which, in many more, retains, nevertheless, its own proper idiom: and of this idiom a good translator will always be able to avail himself. He never can arrive at such an end except by familiar acquaintance with his means; namely, with the peculiarities of the two languages in question. The work, to be properly translated from the canvass to the copper-plate, must undergo such idiomatic changes as belong to the employment of the new material. In every such work of taste, literal interpretation must not be mistaken for fidelity: otherwise a bald, and spiritless, and unsatisfactory result will be inevitable.

Principles of Line Engraving. (14.) The chief study of the Line Engraver, whether in wood or metal, is to contrive such an arrangement of his lines as will be most appropriate for marking the character of each particular object so as to distinguish it from every other, and preserve, at the same time, its proper keeping, (see PAINTING, p. 575. Art. 282, 283.) place, and value in the general composition of the picture. His lines for giving the greatest smoothness and polish are parallel; for extreme hardness and dulness cross each other perpendicularly; or for intermediate degrees take what is called the lozenge-form, and cross each other at some angle less than a right one. The latter have the name of lozenge-hatchings; the former are termed square-hatchings. For a flowing effect these parallels or hatchings will be more or less curved; and, on the other hand, to express stiffness or immobility, or some determined instantaneous action, they will be rectilinear. Again, where any object is to be distinctly prominent, (an effect which greater powers of contrast in the use of colours render variously attainable by the painter,) the Engraver, by giving the lines which shade the object a different direction, or a different degree of thickness, or a different interval between them from the lines which compose surrounding objects, may obtain the utmost force and perspicuity. When, on the contrary, this relief would be improper, and objects require to be flattened or brought nearer together in a position on the same plane almost equidistant from the spectator; here a general assimilation of the lines and shadings is resorted to.†

Handling. (15.) Another Work of Adam Bartsch, published at Vienna, 1821. in 2 vols. 8vo., entitled, *Anleitung zur Kupferstichkunde*, contains much useful and practical information on the arrangement of lines, technically termed *handling*. He observes, however, that a description of all the various ways adopted by judicious Engravers for the purposes of their Art, would, in words only, be a task impossible. We are entirely of the same opinion; and we therefore proceed, after the example, and upon the basis of so skilful an authority, to offer only some general remarks.

Handling considered in two ways. First, we shall consider the most received and most successful methods of distinguishing each several kind of object from any other: and,

Secondly, how to do this so as not to interrupt the unity of the whole, but to contribute towards the harmony and combined effect of the engraved picture

1. Distinct texture of various surfaces. (16.) The sort of surface which it seems of most importance to remark upon, and which requires principally the notice of the Historical Engraver, is that of the human head, and the human skin or complexion. Next to this may be reckoned drapery; and lastly, other bodies, whether natural or artificial.

Of Flesh. For the carnations and texture of the human skin, the half shadows (PAINTING, p. 580. Art. 290.) are expressed less frequently by lines or strokes than by dots. Sometimes these dotted marks are perfectly round, and consist of small conical holes made in the plate, with their apex downward, by a dry needle, punch, or etching point. (See plate i.) At other times they are angular, and each dot consists of a small isosceles triangle, made by a peck of the dotting graver. (*Ibid.*) If the peck be repeated in the same dot, as is the case in Chalk Engraving, the figure of the dot becomes a small irregular polygon.*

Some Engravers who use the burin only (Mr. Bartsch

* The word colour is frequently applied to engraved works, and is, of course, applied in a somewhat different sense from that of the same word applied to Painting. No ideas of actual red, blue, and yellow, or of their compounds, can, of course, be presented to the spectator of a picture composed of only black and white. But we have already noticed on the subject of *Chiaroscuro*, (see PAINTING, last note to Art. 282.) that certain tints of red, blue, &c. have a certain value or keeping, a certain degree of prominence or of unobtrusiveness in every good pictorial composition. The business of the Engraver, and sometimes his chief difficulty, is to estimate exactly this value, and to represent it, as far as the representation is practicable, in black and white. Colour, too, is often only another term for the quantity of black pigment (Art. 7.) which the plate, by being well engraved, is capable of giving out upon paper.

† See Note (D.) at the end of ENGRAVING.

* The works of Luigi Schiavonetti, Anthony Cardon the younger, and John Hall, contain, perhaps, the best modern specimens of stippling judiciously united with the lines of the graver. In some of the Engravings of Schiavonetti, who was not only admirable in the chalk manner but also as a Line Engraver and with the burin, his stippling is wrought into lines such as, in drawing with a crayon, are usually hatched. A beautifully limpid effect is thus produced for water, and a clear, firm precision of character for earth, stone, &c. From the earliest stage of the Art the best line Engravers (under which term are comprehended those who only or chiefly use the burin) have always intermingled stippling with their lines: and examples of this practice continually present themselves among the many admirable Portrait Engravers of the French School. Since the invention of Chalk Engraving, either an admixture of lines with stippled work has been generally introduced, or the dots of the stippling have been arranged in courses to resemble lines in chalk. Such was the method of the masters mentioned at the beginning of this note. Wood Engravers, likewise, practise frequent stippling with the burin. The carnations of the female form, and of children, being peculiarly delicate, require in their half tints a greater number of dots and more stippling than the male figure. Sometimes the stippling takes the appearance of very short lines blunted at each extremity and carried along like links of a chain in a direction appropriate to the form of the object. Between these rows of short or stippled lines, and between the extremities of any two of them, small dots are often inserted as fine as it is possible to execute them, the better to blend the shadings, and give softness. In proportion as these stippled lines approach the light, the shorter and finer they become; until at length they dwindle insensibly into small round points. On the opposite or shady side of the figure they follow a quite opposite rule. They must, as they approach the strong shadow, be drawn to greater length; and must at last join their extremities and form but one continuous line in that part where a second class of strokes forming simple hatchings is added. In illustration of this Mr. Bartsch refers to many excellent examples in the works of Bartoluzzi, of Sir Robert Strange, and of other modern artists.

Engraving

quotes Edelinck and Wille as examples) produce their delicate gradations of shadow altogether by continuous lines, to which they give, according to circumstances, a greater or less degree of fineness. Next they introduce between these lines with a pointed instrument, or stylus, a number of minute punctures at equal intervals. "This process," he observes, "demands a very practised and clean graver; but it promises, if the lines are drawn with proper delicacy, to answer, effectually, the purpose."*

Of Hair.

(17.) Hair is best expressed by lines running in parallels, which in order to mark the shading must be swelled or strengthened to the depth required. The strokes for light hair must be of greater fineness, but must, nevertheless, be full of colour. They must in every case lie near together. In works of magnitude where detail is required, such as portraits, single hairs of a curl are left white, and others added in a mass, an expedient which produces an excellent effect.† Hatchings (Art. 16.) are seldom used for hair except in the broad masses of shade where partings of the hair are not discernible. The cross strokes, however, must always be more delicate than the lines over which they are laid. "A double crossing, or third course of lines is," says Mr. Bartsch, "quite inadmissible in representing hair, and should never be attempted.‡

Handling. Of drapery

(18.) Drapery. Different kinds of drapery require very different handling. Velvet is very appropriately represented by a course of thick strokes full of colour, interlined with others finer and thinner. Where these lines approach the light they must be drawn to a point, and the intermediate strokes made somewhat shorter. In broad masses, requiring for the above arrangement of alternate thick and thin lines a stronger quantity of colour, the effect is produced by wide hatchings, the lines of which are swelled out or drawn finer according to circumstances. This second series of lines crosses the first without the accompaniment of any intermediate strokes.*

Of other substances

(19.) Other substances. All hard and polished surfaces are represented by parallel lines (Art. 14.) clearly and sharply cut, which vary in thickness according to the degrees of light and shade. To give an effect of dazzling lights introduced abruptly on a dark shadow, (as is the case with polished metals and other shining bodies,) the shading lines should not in general terminate in an insensible point, but break off at once upon the bright reflection. Hatchings, except for the darkest shadows, are rarely used, and are most employed where some adjacent object takes off the shining effect. Let the second series of lines in these hatchings be always considerably finer than the first.†

Sky, clouds, smoke, ground, stones, and wood, are generally executed in the early process of the Engraving. In landscapes engraved on metal, the trees, rocks, earth, and herbage should be etched as much as possible. Nothing should be left for the graver but to perfect, soften, or strengthen the previous touches.‡ Whenever objects of this kind are intended to come out distinctly,

* In portraits, where the greatest accuracy must be preserved for delineation of the finer muscles, dots made with the graver have the best effect. Their somewhat lengthy form very much assists in expressing the pores of the skin. To produce in a portrait tones of complexion a little stronger, these dots are often placed more closely together: but oftener, and more successfully, the effect is obtained by a course of fine strokes between which in an oblique direction the dots may be introduced. Mr. Bartsch quotes the best works of the most eminent Engravers—portraits from the burins of J. G. Wille; the Drevets; G. F. Schmidt; G. Edelinck; and François Chereau; the last of whom he distinguishes for peculiar truth and delicacy in engraving the hands and extremities. Shadows of a deeper class are produced by two or three crossings of delicate strokes rather near each other. The powerful shadings which result from two crossings of thick strokes, full of colour, are unsuitable to the delicacy of the human complexion. They can be introduced only in very small heads, and in small portions of shadow; but in such a case the white squares, or lozenges, or interstices must be filled up with dots. In naked figures, these dots must be sparingly introduced, and used only in the weaker shadows, or half tints, consisting at most of two courses of lines. Some good old engravers were in the opposite extreme, and were too sparing of dots. Their carnations, consequently, want softness. In the celebrated print of Judith, which Cornelius Galle the elder engraved after Rubens, and which is admired as a *chef-d'œuvre*, the absence of this charm is painfully evident, since in the figure of Holofernes, and in those of the Angels hovering over the tent, the carnations are executed by lines only, and with the same handling as the draperies. When these dots, which are chiefly employed for the human skin and complexion, occur betweeen lines, they are usually made equidistant from each other, and in the half shadows assume a longer form, taking a direction conformable to the shape of the body or muscle to be engraved, and more or less apart from each other according to circumstances. At the same time we must observe that an excessive and overwrought alternation of little short lines and of dots made with the graver, laboriously introduced in triangles or crosses, will produce a glassy effect, and diminish rather than promote the delicate softness proper for carnations. Mr. Bartsch instances this defect in Wille's Engraving of the death of M. Antony after P. Battoni: and also refers to the breast of Nessus, in an Engraving of Nessus and Deianira after Guido, the otherwise admirable *chef-d'œuvre* of Wille's pupil, C. C. Bervic. We admire, says he, the power of Art, but lament the absence of truth and nature. A beautiful example of soft carnation is given in the figure of Hymen engraved by Bartolozzi in his "Clytia" after Annibal Caracci. *Anleitung, &c.* vol. i. p. 85. sec. 256—260.

† Mr Bartsch (*Anleitung, &c.* sec. 261.) instances among the best works of Antoine Masson portraits of W. Brisacier and of G. Charier.

‡ *Ibid.* sec. 251. The portraits engraved by Jacob Houbraken exhibit beautiful specimens of hair delicately executed. Short hair and fur must uniformly be expressed by short and sharply pointed strokes, with more or less softness according to the sort of skin. In masses of shade, and particularly in the darker masses, an alternation of fine with somewhat deep (*stärkeren*) strokes judiciously combined will have a good effect. Cross-hatchings must be very rarely used in delineating fine white furwork, and must wherever it is possible be altogether avoided. Excellent representations of fur are to be found in portraits engraved by G. F. Schmidt; the Drevets; François Chereau; J. G. Wille; G. Edelinck; J. Muller, and C. C. Bervic. Mr. Bartsch particularly admires a beautiful dog in the portrait of young Frisius engraved by H. Goltz, and the "reposing Lion" of the elder James Gheyn. *Ibid.* sec. 262.

* See Note (E.) at the end of ENGRAVING.

† Fine specimens of shining metal occur in the "Observateur di-trait" of Wille, and in the portrait of the Count S. Florentine, by the same Engraver, where a silver inkstand and gilt framework of a chair exhibit masterly handling. An Engraving, after Titian, by Michael Natalis, of the Marquis del Guest, is an admirable example of glittering armour. The disagreeable effect of hatchings used too freely, and of lines too strongly marked for representation of shining bodies, may be seen in an Engraving published by Wille, in A. D. 1743, consequently earlier than his best manner. It is a portrait of General Belle Isle, after H. Rigaud.

‡ "From the shape of the burin," observes Mr. Gilpin, at p. 48. of his *Essay on Prints*, "each stroke in the copper is an angular incision, which form must, of course, give the line strength and firmness, if it be not very tender." Another operation, however, serves for finer and more delicate touches. It is performed by cutting into the copper with a steel point held like a pencil. This is called the *dry* point or *dry* needle, to distinguish it from the same kind of instrument used previously to the application of *aqua fortis* in etching. Incisions more or less deep by pressure of the dry point produce lines more or less chargeable with colour, but always feebler and more delicate than lines with the graver. The dry point, therefore, may be used with great advantage in fine linen, skies, distances, ice, and often in water, especially in small Engravings. In most things, it is proper to etch the shadows, leaving only the lighter tints for the dry point. See Note (B.) at the end of ENGRAVING.

Engraving. prominently, or in great masses, they must be worked up separately, and with a variety of handling.*

(20.) The representation of soft earth is made in the lights by detached strokes; in the shadows by continuous ones; but always by such as are waving and irregular. At their termination they break off abruptly. In darker shadows, "we generally use," says Mr. Bartsch, "two or three series of hatchings, the strokes of which, like those of the foundation over which they cross, must be crooked; must be somewhat angular; must be here and there broken or discontinued; and must have abrupt endings."†

2. General effect. (21.) Thus far we have selected for observation a few of the peculiar methods of handling by which each kind of object separately considered may be distinguished from the rest. We will now proceed to take some brief notice of what was secondly proposed (Art. 15.) respecting pictorial effect. The same authority whom we have thus far chiefly followed, observes, that in order to form or pass a fair judgment in this respect upon an engraved picture, it is of much greater moment to examine the *direction* of the lines and hatchings (*conduite des hacheures*) than to examine whether they have been chosen according to received rules of mechanical execution. The choice of strokes for Engraving resembles the selection of colours for Painting. The proper colours may be well known and fixed upon. But a further process much more important is to come. They have yet to be duly mixed and blended on the pallette, and laid on with a judicious pencil. To this process Mr. Bartsch compares the direction of lines and hatchings in an Engraving. "For the first of the above purposes," says he, "in both Arts (*viz.* for choice of lines and colours) moderate talents and but little experience are necessary. But for the second, there must exist great genius, much reflexion, and constant practice." Handling.

The author then goes on to recommend a careful study of the best Engravings, and maintains the impossibility of giving more than very general written instructions. All courses of lines, especially that (whatever afterwards be the number of hatchings) which composes the first series or foundation, must take a direction inclining to the form of the body to be represented.*

(22.) The degree of force or delicacy in handling must be chiefly regulated by the size of the plate. The paramount object of an Engraver is to produce his shadows in such a manner that they shall preserve their proper keeping in the picture, and appear as if spread with a brush, although really executed by the juxtaposition of lines. As the artist's aim, however, is not only to represent shadows, but also the various texture and character of the substances shaded, (Art. 16—20.) his execution must avoid the extremes of excessive strength and excessive fineness, and must always be in perfect keeping also with the size of his performance. If the handling is too fine in a large object, which in order to be viewed as a whole must be viewed at some distance from the eye; then the texture of the substance or stuff will be indistinct, and its larger shadows will lose their power. On the other hand, if the execution be too coarse in a small representation, which in order to be seen in detail must be seen much closer to the eye, the effect of such a work will be spotty, will confuse the spectator, make the smaller portions of the representation indistinct, and on the whole be disagreeable.† Keeping.

(23.) Our readers will have perceived that the foregoing principles of Line Engraving, although perhaps especially intended for works on metal, are equally applicable to Line Engraving in wood, or to Lithography. But they apply principally to finished and elaborate chefs-d'œuvre. For mere sketchy performances no precise rules can or need be given. Of such it is enough to say, that the more nearly they produce the imitation of a slight drawing or sketch the greater their merit. It will be seen, however, that other styles of the Art exist, such as on plates of metal, the mezzotinto, and the style of Le Blon; or in wood, the style called printing in chiaroscuro; each of which, in skilful hands, is capable of great force and beauty, but for none of The above rules belong to all three branches of Engraving.

* To the late Mr. Wilson Lowry, F.R.S. the Art is indebted for an admirable invention called the "ruling machine." It is an apparatus for engraving any series of parallel lines, either all equidistant, or having different intervals between them in just gradation from the greatest required width to the nearest possible approximation. It wonderfully economizes labour, and gives a facility before unkoown in all subjects for which a smooth, flat tint is required; such as the blue part of a sky, still water, &c. But it is more especially useful in plates of machinery, &c. having reference to scientific illustration. Many engraved works, and particularly those for the Cyclopædias, bear testimony ever since this invention to its unequalled accuracy and beauty of execution. A diamond point (the use of which for etching was first introduced by Mr. Lowry) is connected with the ruling apparatus, and passed over the copper, so as to make the required incision through the etching ground. (See plate i.)

Clear blue sky should be represented by very fine horizontal parallels perfectly straight and cleanly cut, always made more delicate and occasionally somewhat wider from each other as they approach the horizon. Hatchings are not allowable, unless in a space surrounded by clouds; but even then they give a grey and sombre effect rather than of pure azure. Clouds are imitated by a series of strokes delicately drawn, running closely together, and always so contrived as to follow the shape of the cloud. In sunshine, and for very white clouds, a single course of very delicate strokes is sufficient; but should even those produce a tone too powerful, then small detached strokes which must, however, fall regularly into rows, may be substituted. Darker clouds admit of two or three series of cross lines. In the darkest parts, these hatchings are only strengthened; but the adaptation of his lines to the form of the cloud is the Engraver's chief aim. Where they approach its outline, each class, or course, or series of lines, must always be shorter than the preceding. The lines also of one portion must so blend with those of another that although a distinct separation is somewhat effected by the shading, yet, like all vapours, they may appear to hang one from the other. Clouds loaned by smoke and vapour are handled similarly to atmospheric clouds. An excellent example of clouds of smoke is given in Woollett's Engraving after West's "Battle of La Hogue." Clouds of dust do not hang together so much as others. The series, therefore, for shading them must consist of shorter, and rather broken lines.

† See Bartsch, *Anleitung, &c.* vol. i. sec. 275. p. 92. Also see Note (F.) at the end of ENGRAVING.

* See Note (G.) at the end of ENGRAVING.

† It follows that the Engraver can never venture to exceed figures of a certain size without prejudicing the beauty of his work. A judicious artist will never attempt by lines and dots to represent a human head the size of life. Nanteuil and Masson have made the trial, but have had no imitators. The gigantic heads sometimes engraved by these justly celebrated artists excite admiration rather for expert use of the burin, than for general effect in each composition taken as a whole. Where powerful shadings are required in enormous objects, like the heads in question, the strokes for that purpose must either be too strong and too deeply charged with colour, (*genährtere*, literally *fat*,) or must be too frequently crossed. In the former case the work betrays coarseness: in the latter it has a cramped and scratchy effect, very disagreeable, especially for representing flesh. The figures of Christ and the Virgin in two sheets by Louis Cossin after Le Brun may serve as examples of figures far too large for the graver. See Bartsch's *Anleitung, &c.* vol. i. sec. 291. p. 99.

Engraving.

which (as they do not depend for effect upon the arrangement of lines) the preceding observations can, strictly speaking, be available. To become an adept in these latter styles of Art, considerable experience in the practice of Painting seems indispensable, not only as regards the province of the crayon, but of the brush, not only in the composition of light and shade and monochroms, but also in the actual use of colours. Successful attempts have been comparatively few ; and it is probably to deficiency in the requisite pictorial knowledge that so many failures ought to be attributed.

Usefulness of this Art.

Having now, by a kind of elementary introduction, prepared the way, as we think, for an enumeration of the most remarkable competitors who have successfully aspired to fame in the several branches of Engraving; we shall not detain the reader with remarks on the importance of the Art itself, but conclude him to be already satisfied of its universal utility ; its aptitude for scientific illustration ; its essential and vital services to experimental Science in diffusing the comforts of civilized life ; its value to Literature, and above all to true Religion in preserving and strengthening, by the spread of local knowledge, the foundations of historical truth ; and finally its power to delight as well as instruct mankind, by multiplying and giving almost ubiquity to the most precious gems of every Cabinet ; the rarest natural wonders of every Museum ; and the finest efforts of the human imagination whether in Painting or in Sculpture, of every School, every collection, every Gallery that exists, or that has existed since the XIVth Century.

Xylography. Its origin Oriental.

(24.) Wood Engraving, as being the earliest of the different kinds mentioned for taking impressions, (Art. 12.) stands first in the chronological order, which, in the subsequent pages, as far as is conveniently practicable, we shall pursue. The Oriental origin of wooden tablets for preserving public records is indisputable.* But on the question how soon the process began of printing from blocks, or wooden tablets, antiquity has hitherto been silent. The learned Baron Meerman, in his *Origines Typographicæ*, quotes, from a History of China written by Abusaid in Persian, A. D. 1317, the following passage among others to show that the Chinese of that period had long been familiar with the Art. "All the books edited by the persons in question (alluding to three Chinese sçavans whom he names) are written in a beautiful hand, so that each page may be transferred in the same handsome character to the blocks, with which the men of learning are always at great pains to collate their MSS. attesting by a private mark on the back of each block their approbation of it. They next commit these blocks or tables to the best Engravers, and finally complete the whole work by numbering the pages." The Persian writer next describes the care with which these tables (somewhat similar in form, perhaps, to our plates of stereotype) were preserved in cases under the seal of conservators incorporated as a college for the purpose, to whom all applications, when a copy was required, were to be made ; and on the payment to whom of a stated fee, the copy upon paper, with the seal of the proper functionary attached to it, warranting its genuineness, was granted.† Such a system, so methodically organized, argues, certainly, long previous custom. The Baron Meerman is unwilling to go back with some writers of doubtful authority, to a date preceding the Christian era, but agrees with the able and accurate Couplet, a Jesuit Missionary in A. D. 1659, and a resident for several years in China, that the date of A. D. 930 may be fairly assigned for Chinese impressions from wood.*

Probably brought to Europe from China.

(25.) Facts like these, joined to the much freer European intercourse with that extraordinary people nine hundred years since† than exists at present, supply a very sufficient reason, as Mr. Ottley has well observed, why Marco Polo, in his account of China, written after his return to Venice in the year 1295, should have made no mention of Wood Engraving among the marvels of that Country. Had the Art been unknown at Venice, the Venetian traveller could not have omitted the communication to his Countrymen of what in China must have met him at every turn, and what to his genius and acuteness could not but have appeared a most felicitous, most strikingly useful, and marvellous invention. We concur, therefore, in the belief, that a communication such as this would, in the days of Marco Polo, have been "old news" at Venice, and therefore could find no place among his *marvels*.‡ The merchants and nobles of Venice had maintained almost exclusively an uninterrupted commercial intercourse for two centuries before with the East, as well through Alexandria and Cairo as through Constantinople ; of which latter illustrious city they had, in the year 1203, been masters, and in which, ever since the year 1084, their factories had been regularly established under the especial sanction of the Greek Emperor.§

Xylography.

* See Note (H.) at the end of ENGRAVING.

† Meermanni *Origo et primn Specimina Impress. tabelloris*, cap. IX. sec. 2. Also see Note (I.) at the end of ENGRAVING.

* *Præ ceteris probabilis videtur exactissimi scriptoris Phil. Coupletti opinio*, A. D. 930 *assignantis. V. in Chronologiâ Sinensi, annexa Confucii operibus*, p. 65, *ubi impropriè eam (artem scil. apud Sinenses) typographiam vocat. Hic vero auctor quam longissimum tempus in Chinâ transegerit, atque accuratam rerum ad hoc regnum pertinentium notitiam acquisiverit, ex optimis sine dubio fontibus id hausit.* V. Meermanni *Origines Typographicæ*, *ad* cap IX. sec 1. in note.

† The Chinese, observes Macpherson, were more commercial and enterprising in the IXth than in the XVIIIth Century, vol. i. p. 281. Asserius, the great biographer of the great Alfred, mentions his having seen a correspondence of that Monarch with the Patriarch of Jerusalem, which probably suggested to Alfred the benevolent but adventurous design of sending relief to the Christians of St. Thomas in India. Sighelm, Bishop of Sherburne, (to which See Asserius was afterwards translated.) was the person sent, (as William of Malmsbury informs us,) with many presents, on this expedition, and accomplished it prosperously. To the wonder of his Countrymen, he penetrated even to India, bringing thence aromatic liquors or oils, and splendid jewels, some of which remained in the treasury of the Church, when the author wrote. Mr. Macpherson (*Annals of Commerce*, vol. i. p. 263.) very feelingly laments over these meagre records, all that remain to us of this important transaction. The Saxon Chronicle and Radulf de Diceto repeat the history, but are still more uncircumstantial. He observes, that "the early writers could have no motive, if they even possessed capacity, for inventing such a narrative, though it may not be true to the fullest extent. Sighelm went from England to Rome in the year 833, and probably got a passage from some of the Italian ports to Alexandria or Phenicia. It is not impossible (though very difficult for a Christian) that he may have made his way to the South coast of Arabia, or to Bassora, and have proceeded even to India. But if he purchased Oriental commodities in Alexandria, Arabia, or Bassora, any of these places would be confounded with India by his Countrymen, who were ignorant of the geography of Countries much nearer to them." We are inclined, however, to believe, that in the stirring times of King Alfred, the perils of this Indian journey would be less thought of than the length of it : and that a fuller account of it would have been recorded, had the obstacles been such as it was unusual for Oriental Christians, or pilgrims from Italy, to surmount.

‡ See Note (K.) at the end of ENGRAVING.

§ The Venetians obtained this privilege in return for the protec-

Engraving.

But the dawn was now arrived of a new day for civilization in Christendom. The Venetians after deriving from their Oriental commerce so many useful and profitable Arts had not the power, even if they harboured the intention,* of confining them to their own Country. To whatever ports of Western or Northern Europe their fleets were bound, and to whatever inland cities the intercourse with Italy (which during that reign of Popery must have been frequent†) extended, the acquaintance with Asiatic customs, and manufactures, and inventions, would be more or less gradually advancing. Genoa, also, and the other rivals of Venice would assist, unknowingly, it is true, but not less effectually, in this inevitable dispersion of the seeds of useful knowledge. And accordingly we find that, almost by a simultaneous impulse, in or near the great commercial marts of the North, especially in Germany and the Low Countries,‡ the Art of Printing from blocks appears coeval with the same practice in Italy. The Germans, whose skill in mechanism was proverbial in the XIVth Century,* were probably the inventors of the printing press, which succeeded to the ancient method practised to this day by the Chinese, namely, the application of a brush or hand-roller to the back of the paper, after laying it, in a dry state, on the block ready charged with ink for the impression. The invention also of printer's ink, suggested probably by the discovery of oil painting, gave to the early German prints a great mechanical advantage over the first essays of Italy.†

Ancient Xylography.

(26.) It has been usual to give the name of "old masters" to such Engravers, whether in wood or metal, as practised the Art from its introduction into Europe to the end of the XVIth Century: and to divide these into only two Schools, that of Italy and that of Germany: in consequence of the comparatively very few old Engravers to be found in other Countries, and the style of those few being traceable to one or other of the two sources mentioned.‡ We propose to adopt the latter mode of division with respect generally to the two Schools of ancient Engraving: but, at the same time, with respect to the present branch of the Art, or Xylography, we consider it most convenient to include under the old Schools artists also of the XVIIth Century: so as to date modern Wood Engraving from the times of Papillon and Count Zanetti, near the commencement of the XVIIIth.

Only two ancient Schools: the Italian and the German.

(27.) To begin then with the old Engravers on wood, according to the simple process, and in the School of Italy.§

Old School of Italy.

Alessandro Alberico Cunio and his twin sister *Isabella*, born about A. D. 1270, are recorded as the earliest practitioners in this Art whose names are known. Their interesting history is given by Mr. Ottley, as compiled from the Works of Papillon, who saw a set of their Engravings, eight in number, and wrote down at the time a particular description of each, together with various memoranda respecting them out of the Work itself, originally written in the Swiss language, but translated to him by M. de Greder the possessor. These young persons passed their youth in the cultivation of their highly-gifted minds, and when arrived at the age of sixteen, had perfected themselves in various accomplishments, among which the Arts of Design and Engraving on wood were conspicuous. It is not improbable that they acquired their artistic knowledge from some monkish illuminist, or *formschnieder* in the Religious houses of that period, with whom they might form accidental acquaintance through the circumstances attending the clandestine marriage of their noble parents. For their own amusement and the gratification of their friends, Alessandro and Isabella composed and jointly executed a series of prints representing the "heroic actions of Alexander the Great," with an appropriate dedication

Simple process in wood. The Cunio.

tion afforded by their fleet against the incursions of the formidable Norman pirate, Robert Guiscard, with whom they disputed the command of the Adriatic. Through Constantinople their facilities of trading Eastward to the utmost boundaries of Asia were obvious. The Mogul Empire, or Empire of Tchinghiz Khan, extended, A. D. 1226, from the Caspian to the Yellow Sea, and between 35° and 55° North latitude. In A. D. 1290 it reached from the borders of Asia Minor Eastward to the Persian Gulf, and thence to 65° East longitude. V. Klaproth, *Tableaux Historiques*. We think it probable that printed silks and calicoes preceded impressions upon paper. See Macpherson's *Annals of Commerce*, vol. i. p. 138, *et seq.* Before the invention of paper in Upper Egypt, whether at Memphis or at Seide it matters not, linen or cotton cloths were used for MSS. The Ancients, till the diffusion of that invaluable manufacture, the papyrus, seem to have tried every substance within their reach: palm-tree leaves, table-books of wax, ivory, and lead; intestines of different animals, and sometimes the backs of tortoises. There are few plants that have not at some time furnished materials or leaves for books. Hence the several terms biblos, codex, liber, folium, tabula, &c. expressing the different parts used for inscription. Hansard, *Typographia*, p. 202. See also note at p 7. vol. i. of Bishop Tomline's *Elements of Christian Theology*.

* Temanza, a Venetian architect, had the good fortune to discover among the archives of the old Company of Venetian Painters (v. *Lettere Pittoriche*, tom. v. p. 320) a decree of the Government of Venice, dated 4th October, 1441, which throws much light on the subject of early block-printing, and which the reader will find quoted at length in Ottley's *Hist. of Engraving*, p. 47, and in Singer's *Hist. of Playing Cards*. The trade of the native artists in Venice had fallen, as appears from the preamble of this document, into decay, (in consequence, we presume, of a considerable influx of similar goods from the foreign market,) and the decree was passed to exact a protecting duty upon all imported work of the "art or mystery of making cards or painted figures, whether printed or painted on cloth or paper, altar pieces, (*ancone*, perhaps a corruption from *εἰκὼν*, *icon*, an image,) playing cards, (*carte da zugare*,) or whatever work of said Art is done with a brush and printed." "The most reasonable conclusion," says Mr. Ottley, commenting on this and other circumstances respecting the revival of Arts in Europe, "is, that the Venetians acquired the Art of Wood Engraving at a very early period of their intercourse with the people of Tartary, Thibet, and China, that they practised it among the other Arts which they had learned from their Eastern friends, as a mean of beneficial traffic with the Continent of Europe; and that in course of time the artists of Germany and other parts found out their secret, and practised it themselves." See *Hist. of Engraving*, p. 59, 60, and Zani, *Materiali*, &c. p. 77.

† The Italian merchants dispersed throughout Europe became very convenient agents for the Popes, who employed them to receive and remit the large revenues they drew from every Country which acknowledged their Ecclesiastical supremacy. It seems probable that they also employed them to lend their money upon interest, whence they are called the Pope's merchants, as Matthew Paris (p. 419. 423. &c.) expresses it. Macpherson, *Annals of Commerce*, vol. i. p. 399.

‡ See Note (L.) at the end of Engraving.

* Manuel, the unhappy Emperor, was driven from Constantinople, by the terror of the Turkish arms, to mendicate assistance from the Christian States of Europe, among the descendants, says Mr. Macpherson, of those *barbarians* who had usurped his Western Provinces. The observations (towards A. D. 1400) of Manuel or his Greek attendants respecting the different places and Countries named in his tour, as Germany, France, Flanders, England, London, and Venice, are circumstantial and characteristic. Of the Germans, the Imperial traveller observes, that they *excel in the mechanic Arts*, and boast of the invention of gunpowder and cannons. *Annals of Commerce*, vol. i. p. 611.

† See Note (M.) at the end of Engraving.

‡ See the Preface to vol. vi. of Bartsch's *Peintre Graveur*, 8vo. Vienna, 1808.

§ For the tools and materials in Xylography, see what follows in Art. 32.

Engraving.

in the frontispiece to Pope Honorius IV.,* to whom their mother, a noble Veronese lady, was related.

In our preceding columns (see PAINTING, p. 470.) we have already adverted to these times, the times of Cimabue and of his popil and protégé Giotto; the former born of noble Florentine lineage, A. D. 1240, the latter born 1276, the son of a shepherd near Florence, whom his future patron and instructor discovered chalking the figure of a lamb upon a stone in his native fields. It was to such men as these, the contemporaries of the Cunio and of Dante, (born in 1265, about five years later than the Cunio,) that Italy owed the recovery of her intellectual refinement in Literature and in the Arts.† No authenticated prints, however, are extant to fill up a chasm here of more than a century and a half. But it is not therefore to be imagined that the XIVth Century in Italy was unemployed in works of Art, though probably less in Italy with regard to the Xylographic branch of it than in those other Countries of Europe which competed with the Italians so successfully as to bring Wood Engraving into decay among them, at least among the Venetians, according to the acknowledgment of a decree of Venice A. D. 1441. We refer then to our short account of the *Quattrocentisti*, (PAINTING, p. 471.) with which the reader will fill up this interval, and we proceed to the next name among early Italian contributors.

Mocetus.

Girolamo Mocetto, or Hieronymus Mocetus, born about 1454 at Verona, was taught Painting by Giovanni Bellini, whose brother Gentile we have mentioned at p. 471 on PAINTING, as doing honour to Venice. Mocetto is said to have executed a wooden cut of the "Entry of Christ into Jerusalem," dated 1500.

Il Titiano and his brother Cesare Vecelli.

A fellow pupil of Mocetto, the great *Titian*, is next on record as having, in 1505, when at the age of twenty-eight, obtained high praise for a print of the "Marriage of St. Catharine." Other works are ascribed to him by Papillon. *Cesare Vecelli*, the brother, *Domenico Campagnola*, the best early scholar of Titian, and *Boldini* of Vicenza, or Vicentino, also Titian's reputed pupil, were Wood Engravers. The long life of Titian (ninety-nine years) must have enabled him to foresee, with no small gratification, how widely the Engraver's Art was to extend and perpetuate the fame of Painters.

Domenico Campagnola. Vicentino.

Vico.

Ænea Vico, born at Parma in 1512, was at Florence in 1545, where he presented the Emperor Charles V. with the portrait which he had engraved of that Monarch, and for which, according to Gori, he received 100 crowns. It is a wooden cut surrounded by emblematical figures composed with taste and well drawn. It is executed with great care, and the hatchings in imitation of strokes are so well expressed, that Strutt, who saw this specimen, "can hardly suppose it to have been his first attempt." This learned person retired about 1568 to Ferrara, where he passed the remainder of his life under the protection of Alphonso II.

Ancient Xylography.

Girolamo Porro, born about 1520 at Padua, wrought at Venice, where his last performance was a set of wooden cuts for the *Funerali degli Antichi* of Tommaso Partacchi, published in 1591.

Porro.

Meanwhile, Florence, Bologna, and Rome added further specimens of Italian Xylography. *Guiseppe Porta*, a pupil, at Rome, of the Florentine painter Salviati, and himself an eminent painter, engraved on wood with admirable expression and effect. Bologna produced from the hand of the elder Coriolano, besides various other works, several very masterly performances in wood, after the designs of Vasari, for his *Lives of the Painters*, first published in 1568. This artist, a native of Nuremberg, who changed his name, as Heineken informs us, from Christopher Lederer to *Cristoforo Coriolano*, (alleging his descent from the Patrician so called,) seems to have striven hard for a place in the rolls of Roman fame. His son *Bartolomeo*, born at Bologna, also pursued the Art. *Veronica Fontana*, instructed in drawing by her father, and by the celebrated Bolognese paintress Elizabeth Sirani, executed small portraits in wood with great neatness. *Raffaelli Scaminossi* too, the Bolognese painter, who flourished about 1610, performed some few Engravings on wood. *Leonardo Norsini*, (called *Parasole*,) a native of Rome, with his wife *Isabella*, and their son *Bernardino*, also were Wood Engravers. Leonardo, who flourished in 1600, was of some celebrity and much employed by Antonio Tempesta. At the command of Pope Sixtus V. he engraved on wood the plants, &c. for the herbal published by Castor Durante, physician to his Holiness. Bernardino was a painter as well as Wood Engraver. Isabella, his mother, executed in block printing several ingenious designs for lacework; and a considerable number of plants for the herbal of Prince Cesi. Another lady, *Hieronyme*, of the same surname and family, engraved after A. Tempesta, with much spirit but with very incorrect drawing, says Strutt, and in a coarse style.

Guiseppe Porta. Coriolano, father and son. Veronica Fontana. Scaminossi. Family of Parasole.

One example, the only one we have been able to record of a Spanish Wood Engraver may here be mentioned, *Juan Vingles*, who flourished at Zaragoza in 1550, and engraved in wood the illustrations for the *Ortografia Pratica* of Juan de Iciar, published there in that year. Bermudez, in his *Diccionario dellas Bellas Artes*, pronounces the cuts of Juan Vingles to be in good taste, with figures highly characteristic, and correctly drawn.

Juan Vingles of Zaragoza.

(28.) Next, we are to name the ancient Italian artists who have used the compound process (see Art. 12.) of engraving in wood.

Compound Xylography of Italy.

Of the first kind of compound process (for which stensilling* was introduced) few or no positively Italian specimens remain of which we are aware; though, doubtless, they must have been as numerous in Italy as in other parts of Papal Christendom, being especially employed for purposes of Religious worship† or instruction, or, to speak more plainly, for extending the influence of legendary superstition. The Abbé Lanzi saw in the Cabinet of the Count Durazzo, some ancient playing cards, from designs, as he conjectures, of Jacobello del Fiore. These were coloured in stensil. *Il lavoro*, says he, *a' periti è paruto a stampa i colori duti per*

I. Stensilled prints.

* See Note (N.) at the end of ENGRAVING.

† Giotto painted the portrait of Dante, who has thus celebrated him in the *Divina Commedia*.

Credette Cimabue nella pintura
Tener lo campo: ed ora ha Giotto il grido,
Si che la fama di colui è oscura.
Del Purgatorio, can. 11. l. 94.

The Poet here evidently alludes to the inscription on the tomb of Cimabue in the Duomo at Florence.

Credidit ut Cimabos picturæ castra tenere
Certè sic tenuit; nunc tenet astra poli.

It is remarkable that Ravenna, the retreat of the Cunio, was the last retreat of Dante. He died there under the roof of his hospitable patron, the Lord of Ravenna, soon after returning from a mission to Venice, in 1321.

* For an explanation of stensilling, see last note to Art. 12.

† See Note (O.) at the end of ENGRAVING.

Engraving. *traforo:* and adds, *monumento piu antico non so in tal genere. Storia pittorica*, vol. i. p. 129.*

2. Prints from two or more blocks.

In the second class of compound Xylography, the Italians, with whom the invention of chiaroscuro† printing by successive impressions *from wood only* seems to have originated, are remarkable. The invention is attributed to

Da Carpi.

Ugo da Carpi, (born at Rome in 1486,) the fellow student of Raffaelle d'Urbino. His prints, though very slight, says Strutt, are masterly and spirited, and preserve at least a bold, striking resemblance to the sketches of the great painters (chiefly Raffaelle and Parmegiano) from whose designs they are taken. One block is used for the outline and darkest shadows, another for the lighter shadows, and a third for the demitints.‡

Contemporary with Da Carpi was another Painter and Engraver, *Domenico Micarino*, born of humble parentage, at a village near Sienna, who assumed the name *Beccafumi* of his patron in that city; where his paintings both in oil and fresco, and other works, (see PAINTING, p. 477.) procured him great reputation. He, too, had studied at Rome the master lines of Raffaelle and M. Angelo. He executed his chiaroscuro sometimes on two, sometimes on three blocks; one for the outline and deep shadows, the other for the lighter tints. He wrought after his own designs, as well as from those of Titian and others. But the process was in the hands of a much more distinguished Siennese artist of the same period, *Baldazzare Peruzzi;* (PAINTING, *ibid.*) if a print attributed to him be his, representing "Avarice driven by Hercules from before Apollo, Minerva, and the Muses." "It is," says Strutt, "in three blocks; the first for the outline, the second for the deep shadows, and the last for the lighter tints; and is executed in a fine, spirited, bold style."

Domenico Beccafumi.

Peruzzi.

G. N. Vicentino.

Guiseppe Nicola Rossigliani, called *Vicentino*, from being born (in 1510) at Vicenza, engraved also with three blocks, (the first for outline, the next for the more powerful shadows, the third for lighter tint,) after Raffaelle and other masters.

It was from Parma, however, that the genius arose, which probably brought this method of Engraving to all the perfection it attained in that Age. *Francesco Mazzuoli*, or *Parmegiano*, superintended, as is well known, the execution of many of his own designs, by Ugo da Carpi, Antonio da Trento, Andrea Andreani, and others. He was a profound master of chiaroscuro, in the best of all schools, that of Correggio, and would, no doubt, be careful to enforce the principles which his paintings prove him to have practised. *Antonio da Trento* was his pupil, though five years older, being born (at Trent) in 1508, and devoted himself by the recommendation of his master to Wood Engraving, for which he generally used three blocks; the first for the outline, the next for the dark shadows, and the last for demitint. These cuts are justly esteemed.

Parmegiano.

Antonio da Trento.

Ancient Xylography.

Andrea Andreani, born at Mantua in 1540, was of small celebrity as a painter, but the prints in chiaroscuro extant under his name are numerous and excellent. He settled at Rome, and frequently practised the disingenuous artifice (unworthy of his great talents) of effacing the names of other artists from as many blocks of value as he could procure, substituting his own cipher, and selling the prints for performances by himself. "At times," says Strutt, "he used only two blocks, (namely, for his slighter works,) but oftener three, and never exceeded that number; one for the outline and very dark shadows, the other two for two different tints." He carried manual execution to greater perfection than any of his predecessors, so that we find his prints distinguished by an unusually clear and determined outline.

Andrea Andreani.

Bartolomeo and *Giovanni Batista*, sons of Cristoforo Coriolano, already mentioned, (Art. 27.) have left respectable proofs of merit. Bartolomeo was an able designer. He confined himself usually to two blocks, one for his outline and dark shadows, which he performed like hatchings with a pen; the other for demitint. His prints show great judgment, and have a very fine effect. *Domenico Falcini*, born about 1580, is another artist who flourished in the beginning of the XVIIth Century. His engravings (after Raffaelle) are performed by three separate blocks, one for outline, another for demitint, and the third for dark shadows.

B. and G. B. Coriolano.

Falcini.

(29.) The German School of Wood Engravers exhibits a far greater number of early specimens than the Italian * We have above seen (Art. 28.) the branch of Xylography chiefly practised in Italy arrive to great excellence under the fostering eye of some distinguished Painters. In the German School a similar effect was produced at an early stage of what we have called the simple process of Xylography. *Michael Wolgemuth* and *Wilhelm Pleydenwurff*, two artists of Nuremburg, contributed their drawings for the embellishment of Hartmann Schedel's publication called the *Nuremburg Chronicle*, in A. D. 1493. These efforts for improvement were ably seconded by the great patriarch of German artists, *Albert Durer*, the pupil of Wolgemuth, and a native likewise of Nuremburg. (See PAINTING, p. 485.) In short, Engraving was expected to do as much for Painters, as letter-press could for authors.

Germany. Old Xylographic School.

Wolgemuth and Pleydenwurff.

Durer.

The invention of Printing, by movable types, (*typi mobiles,*) or the substitution of them for engraved blocks, (*typi fixi.*) whether by John Gutenburg, as has been thought most probable, or by John Fust of Mentz, or by Laurence Zaussen Coster of Haerlem, is incidentally connected with our present subject, but would detain us longer than our limits allow. It is a sufficient honour to the Xylographic Art to have suggested the invention. No disputer that we know of has ever questioned that from block books with engraved figures and scrolls, such as the *Biblia Pauperum*,† the *Book of Canticles*, *Ars Moriendi*, and *Ars Memorandi*, the *Speculum Humanæ Salvationis*,‡ the *History and Visions of St. John*.§ or Dr. Hartleib's *Book of Chiromancy*,‖ the idea of a

Invention of types suggested by Xylography.

* In Mr Ottley's "Examples of ancient masters," some remarkable fac similes are given of a set of playing cards *à la trappola*.

† See Note (P.) at the end of ENGRAVING.

‡ *Il imagina de faire des camaïeux à trois et quatre planches, ou rentrées de teintes par dégradation dans la même couleur, et sans aucune taille; ce qui faisoit des mates* (flat washes) *de couleurs adoucies qui paroissoient avoir été faites avec le piaceau, et même il les imprimoit sur un papier gris, de sorte que les parties éclairées qui restoient du fond du papier faisoient une dernière teinte très foible, qui s'unissoit parfaitement bien avec celles des planches gravées et toutes ensemble elles imitoient fort bien la peinture en camaïeu. C'est là l'invention qu'on doit rapporter à Ugo mais non pas l'origine de la Gravure en Camaïeu qu'il n'a fait que perfectionner.* Papillon, *Traité, &c.* tom. i. p 392, 393.

* See Note (Q.) at the end of ENGRAVING.

† See Note (R.) *Ibid.*

‡ See Note (S.) *Ibid.*

§ This and the others, with the exception of three, *viz.* the *Biblia Pauperum*, the *Canticles*, and the *Speculum Humanæ Salvationis*, Mr. Ottley conceives were probably the rude manufacture of the ordinary cardmakers.

‖ The name of Jorg Schapff, the person who, according to

Engraving.

more convenient method for types, first perhaps for whole words, and at length for letters, arose.

Ancient Xylography.

Eight remarkable cities.

The cities of most celebrity in which Xylography, according to the ancient German School, was practised in its simplest form, were Nuremberg, Augsburg, Antwerp, Strasburg, Amsterdam, and Leyden, to which we may add Lyons and Paris.

1. *Nuremberg.*

Nuremberg, for a length of time, preserved the character which the genius of Albert Durer and his people obtained for that City in the Arts. We have mentioned works of Pleydenwurff and Wolgemuth. From those of the indefatigable Durer, Mr. Ottley, improving upon the Catalogue of Bartsch, gives a description of 145 subjects.* Among them is the "Apocalypse of St. John the Evangelist, a set of sixteen pieces with explanatory text, (of this the first edition was printed in 1498,) also the "Fall of Man and his Redemption through Christ," a set of twenty-seven pieces, out of which Mr. Ottley presents his reader with four impressions beautifully printed from the original blocks, in the possession of Mr. P. E. Boissier. Another set, consisting of twenty pieces, represents the "Life of the Madonna."† *Hans Schauffelein* the younger, and *Hans Sebald Beham*, native of Nuremberg, followed in the steps of Durer. From the works of the former Mr. Bartsch describes 132 subjects, but doubts whether Schauffelein engraved any of them, though they bear his mark.‡ One of them is a set of twenty-two pieces, for a Work entitled *Himmelwagen und Höllewagen*, by Hans von Lenrodt, published at Augsburg, in 1517. Another is of forty pieces, for *Der Teutsch Cicero*, by Heinrich Steyner, Augsburg, 1534. Another, of seventy-three pieces, explained the Doctrines, Miracles, Life, and Passion of Christ, 4to., Frankfort, 1537. Of Beham Mr. Bartsch enumerates 171 subjects, of which seventy-three cuts belong to Scripture History, a set of eight for the Passion of Christ, and a set of twenty-eight for the Apocalypse of St. John. The first publication of Beham's *Bibliceæ Historiæ* was at Frankfort, in 1536. *Henry Lautensach*, who followed the style of Sebald Beham, is said to have also engraved in wood. Two subjects, with the mark of his son, Hans Sebald Lautensach, are mentioned by Bartsch. He died at Nuremberg in 1590. *Virgil Solis*, who was born in 1514, at Nuremberg, and Jodocus or *Justus Amman*, who died there in 1591, are well worthy of mention. The works of Virgil Solis on wood, (for several of which see Bartsch, *Peintre Graveur*, vol. ix. p. 316.) as well as those of Amman, whose style they resemble, were chiefly published at Frankfort. They are voluminous. Solis, who was a painter, illuminist, and Engraver, employed artists under him in various departments, and died rich at the age of forty-eight. There is a set by Amman (Bartsch, *Ib.* p. 371.) of 115 prints of Arts and Trades, published at Frankfort, 1564, several times reprinted.

Hans Schauffelein. H. S. Beham.

H. Lautensach.

Virgil Solis. J. Amman.

2. *Augsburg.*

In Augsburg, *Johan Burghmair*, the pupil of Albert Durer, executed prints in wood, which approach the fire and spirit of his master.* The father of Holbein was a native of Augsburg, where *Hans*, his celebrated son, was probably born, in 1496. They afterwards removed to Basle. The younger and the greater *Holbein* is said to have practised Wood Engraving as early as 1511, at the age of only thirteen, and to have been employed before his departure from Swisserland by the most considerable publishers of his time at Basle, Zurich, Lyons, and Leyden.† *Sigismund Holbein*, his uncle, has some very indifferent wood-cuts ascribed to him. *Alexander Mair*, who flourished about A. D. 1660, resided chiefly at Augsburg. This person must not be confounded with the Mair of more ancient times, who flourished about 1499, and for whom some German writers claim the invention of Engraving in chiaroscuro.‡

J. Burghmair. Hans Holbein.

Sigismund Holbein.

Mair.

3. *Antwerp.*

Meanwhile, Antwerp had contributed early to Xylography; a very old print published there is described by Heineken, having the name *Phillery*, with the following inscription in old Flemish characters, "Gheprint t'Antwerpen by my Phillery de Figursnider," *printed at Antwerp by me, Phillery, Engraver of Figures. Gerard de Jode*, the founder of a celebrated family of artists, was born at Antwerp in 1541. Papillon (*Traité de la Gravure en Bois*, tom. i. p. 229.) mentions some cuts by him, printed at Anvers, in 1566. But *Christopher Jegher*, whose merits recommended him to Rubens for engraving his designs, is the most deservedly celebrated artist in this way that Antwerp can boast. His prints, after that great master, have a very powerful effect, being cut in a bold, free style, with spirited strokes, in imitation of cross-hatchings by a pen. After the death of Rubens, he purchased the greater part of the blocks, and republished on his own account. He worked, also, after the designs of other masters. Among these is a "Crucifixion," after F. Frank, dated 1637.

Phillery.

De Jode.

Jegher.

4. *Strasburg.*

The City of Strasburg gave employment to the two *Stimmers* of Schaffhausen; Tobias, and his brother John Christopher, who executed some cuts for the Bible published at Basle by Thomas Guarin, in 1586. Of these prints, which are small, and after the designs of Tobias, it is no inconsiderable proof of merit that Rubens declared he had studied them with attention,

The Stimmers.

Heineken, executed these cuts, is to be found at the bottom of the fourth page of the Work, which consists of twenty-four pages, printed on both sides. Nothing can be a ruder performance. See Note (T.) at the end of ENGRAVING.

* V. *Peintre Graveur*, vol. vii. p. 116—197. Ottley's *Hist. of Engraving*, p. 727—736. Two out of the 145 were in a future impression printed in chiarescuro. (Art. 30.)

† Both these latter sets were eagerly purchased and copied by Marc Antonio on copper, at Venice, who sold them for originals. He affixed the mark of Albert Durer on all but the last plate of the second set, to which he put his own. Bartsch is of opinion (*Peintre Graveur*, vol. vii. p. 18.) that the inequality of execution in the wood-cuts attributed to Durer is so great as to make it improbable that all of them are from his hand. Some of them contain, according to the same Writer, indications more or less decisive of the actual hands which engraved them. A Holy Family (quoting from Merr. *Journal*, &c. tom. vii. p 73.) he attributes to Hans Glaser, a cardmaker: a Madonna to Hans Guldenmund, and the Rhinoceros (Art. 30.) to Hen. Goltzius of the Hague, &c. &c.

‡ See Note (U.) at the end of ENGRAVING.

* *Peintre Graveur*, vol. vii. p. 201. Of the triumph of Maximilian, Bartsch observes, (*Ib.* p. 231.) *Ce recueil consiste en* 135 *pièces qui sont autant de monumens précieux de l'Art de la Gravure en Bois, et qui, par la légèreté et la correction du dessein, autant que par le sens et l'habileté de l'exécution, méritent l'attention et l'approbation de tous les connoisseurs. Ces planches ont été gravées* (p. 235.) *dans les années* 1516, 1517, 1518, *et* 1519, *par dix-sept graveurs en bois très-habiles, sur les desseins de Hans Burgmair dont les lettres H. B. sont marquées sur beaucoup de ces pièces. Les noms des graveurs qui sur le dos d'un grand nombre de ces planches* (*toutes de bois de poirier*) *sont tracés à l'encreen toutes lettres gravés seulement en monogrammes sur le bois.* Jerome André, Jean de Bonn, Cornelius *ou* Corneille de Bonn, *ou* Corneille Liefrink, Hans Frank, Saint German, Guillaume *et* Corneille Lefrink, Alexis Lindt, Josee de Negher, Vincent Pfarkecker, Jaques Rupp, Hans Schauffelein, Jean Taberith, H. F. F. P. *et* W. R. *et* Guillaume *peut-être* Guillaume Lefrink.

† See Note (V.) at the end of ENGRAVING.

‡ See Note (W.) *ibid.*

Engraving.

and derived much instruction from them. *Christopher Maurer* of Zurich was a pupil of the elder Stimmer.

Maurer.

5. *Amsterdam.* Van Assen.

At Amsterdam, *John Walther Van Assen* and the Van Sichem family were conspicuous. Van Assen was born about 1490. His works are admirably executed, and highly appreciated by collectors. Bartsch mentions twenty-one Scriptural pieces having his mark. (*Peintre Graveur*, tom. vii. p. 444.) Strutt considers him as successful only in the expression of his heads.

The family of Van Sichem.

Of *Christopher Van Sichem*, Strutt informs us that he executed some portraits and other subjects on wood, from Goltzius, which deserve commendation. The prints by *Cornelius* he affirms to be "stiffer and of heavier execution" than those of Christopher: but of the cuts by *Karl Sichem* he expresses no opinion. To Cornelius are attributed more than 600 prints of Scriptural subjects.

6. *Leyden.* Lucas Van Leyden.

Leyden was remarkable for giving birth and fame to Lucas Jacobs, called *Lucas Van Leyden*. (See PAINTING, p. 480.) He was an Engraver, but it is doubted, both by Adam Bartsch and Mr. Ottley, whether he ever engraved on wood; though both these writers give a large list of Xylographic works engraved after his designs.* No works of this kind, however, bear his mark. The only part which Mr. Ottley thinks he might have had in the performance of them was that of making the designs upon the wooden blocks. From the uniform similarity of their execution, Mr. Bartsch considers that Lucas must always have employed the same artist for cutting his designs; and this person was, undoubtedly, of great ability. Lucas died in 1533, at the age of thirty-nine.

Other Flemish artists.

Jan Livens.

Jan Livens of Antwerp, the successful follower of Rembrandt in the beginning of the following century, has two wooden cuts ascribed to him, very fine and scarce works. In this Flemish list might be included *Justus Negher*, of Nordlingen, whom Bartsch distinguishes as one of the ablest Wood Engravers in the early part of the XVIth Century; *Peter Koeck* of Alost, the celebrated traveller to Constantinople, who has left us his work of Turkish costumes, &c., dated 1533; *Conrad Meyer*, of Zurich, who engraved some admirable cuts for Erasmus's "Process of Folly;" and *Edward Echman* of Mechlin, who has copied in wood with surprising delicacy and spirit some fine copper-plate prints by Callot. *Ludwig* or *Louis Businck*, who flourished at Minden, according to Heineken, about 1630, executed some spirited prints after his own designs, and those of Geo. Lallemand, his contemporary, of Nancy.

Negher

Koeck.

Meyer.

Echman.

Businck.

7. *Lyons.* Bernard and Woeiriot.

Solomon Bernard was born at Lyons in 1512. Nine sets of prints, most of them for books, printed at Lyons, are attributed to him. *Pierre Woeiriot* of Bar Le Duc, who resided chiefly at Lyons, is described by Papillon as a Xylographer who marked his wood-cuts with a double cross, called the cross of Lorraine.†

8. *Paris* and *Rouen.*

The XVIIth Century brings us to the remarkable families of Sueur and Papillon at Rouen. *Pierre le Sueur*,* a disciple of Du Bellay, was born in 1636. The elder *Papillon*, his fellow-pupil, was but an indifferent artist; but his son *John*, called the younger Papillon, father to the well-known writer on the Art, and said to have been the inventor of printing-papers in imitation of tapestry, was a good draughtsman and tolerable Engraver. He died at Paris 1723.

Ancient Xylography.

Families of Le Sueur and Papillon.

(30.) In the first of the two compound processes (Art. 12.) of Xylography, the earliest specimen extant with a date, *viz.* the St. Christopher, has already been alluded to. (Art. 28. Note (O.) at the end.) It was discovered by the Baron Heineken in the Chartreuse at Buxheim, near Memmingen, and is dated 1423. The "Annunciation," another print found with it, pasted in the same book, is considered equally ancient, but is without a date. Jansen alludes to another remarkable specimen in his *Essai sur l'Origine de la Gravure*, tom. i. p. 90. where after stating first the process of cutting the outline on the block by the *formschneider*, and then the subsequent process of colouring (with a stensil) used by the *briefmahlers*, or card-painters,† he remarks, *c'est exactement de cette manière qu'ont été exécutées les figures de l'Apocalypse à la Bibliothèque Impériale à Paris.*‡ But respecting the names of these numerous operators nothing is known. He asks (at p. 108.) *mais il s'agit de savoir qui etoient ces ouvriers? On ne connoit par certitude aucun graveur en bois avant Wolgemuth et Pleydenwurff.*

Compound process of the German School.

Stensilled prints.

In the other compound process, (Art. 12.) we doubt whether many German artists followed chiaroscuro Engraving exactly in the method which Ugo da Carpi, as we observed, (Art. 28.) is said to have introduced into Italy, namely by means of wood blocks only, and without copper-plate outlines. Bartsch seems to contend that the invention, in any shape, is altogether German. He remarks that a specimen remains of Ugo da Carpi with no earlier date than 1518, but owns that the other prints un-dated from the hand of that master, may (from their being worked with no more than two blocks) be much earlier performances. And then he mentions

---

* V. *Peintre Graveur*, vol. vii. p. 438. Ottley's *Hist. of Engraving*, p. 751.

† *Traité de la Gravure en Bois*, tom. i. p. 150, 151. 240. See also Strutt's Dictionary. *Noel Garnier* is mentioned by Papillon without specifying any of his works, as *Graveur en bois fort médiocre*; of *Jollat*, another French Engraver, who flourished about 1510, he particularizes, 58 *estampes gravées en bois assez proprement*, and other works, printed at Paris in 1490. *Jaques Perisin* or Persinus, in conjunction with *J. Tortorel*, engraved the Wars of the Huguenots from 1559 to 1569.

* *Rien*, says Papillon, *n'est plus beau et plus hardi que les tailles de ses gravures. Traité de la Gravure en Bois*, tom. i. p. 303. This Pierre le Sueur had two sons of the name of Pierre; the first, called by Papillon Pierre l'aîné, and, according to the same authority, an excellent artist, was born at Rouen in 1663, and died there in 1698. The next Pierre (*du second lit de l'ancien Le Sueur*) *a gravé en bois passablement à Rouen, mais il manquoit, comme beaucoup d'autres graveurs en bois, de ce bon goût, de cet entente de clair obscur, et de la correction dans les figures que procure l'habitude du dessein. Il est mort environ l'an* 1750. (*Ib.* p. 322.) A third son was born between the two Pierres, named Vincent, of whom Papillon gives the family history, (*Ib.* p. 316—322.) and who engraved both in simple Xylography and in chiaroscuro; but was an incorrect draughtsman. He was born at Rouen in 1668, and died at Paris in 1743.

† Ceau Bermudez, in his *Diccionario Historico de las Bellas Artes en España*, though he gives no examples of this precise kind, mentions several illuminists, to the number of about twenty, whose works adorn the libraries of the Monasterio del Escorial, and of the Cathedrals of Seville, Toledo, and Segovia. The most ancient are those of Garcia Martinez, belonging to the Cathedral of Seville. He flourished between 1343 and 1381. The most numerous were executed for Philip II, and the latest are by Mosen Eliseo Bononat, described as *pintor e presbitero*, who died in 1761. Not unfrequently, the process of illuminating resembled what is called, in modern phrase, "oriental tinting," and was practised by means of stensils cut out of thick vellum, tin, or pasteboard.

‡ In the *Book of Trades*, published in 1564, for which we have said (Art 29.) that Justus Amman executed the cuts, the block-cutter, or *formschneider*, is represented in one print, and in another the *briefmahler*, each performing his peculiar and separate process.

Engraving.

various German works with dates, three, six, and even nine years previous to 1518.*

A rhinoceros, imported from India to Lisbon in 1515, was sent as a present by Emanuel, King of Portugal, to the Emperor Maximilian I. Of this animal, Albert Durer made a design, which bears his monogram and the date, 1515, on the original block. Some impressions of this work are printed in *clair obscur* with two blocks. A "Holy Family" and a "Crucifixion" are also enumerated among the *clairs obscurs de deux planches* attributed to *Durer*, but which Adam Bartsch considers doubtful. The "Crucifixion," however, is regarded by Mr. Ottley as a genuine production.† The seventh volume of the *Peintre Graveur* records (at p. 320.) a work by Hans Baldouin Grün, *clair obscur de trois couleurs*. Of *Hans Ulric Pilgrim*, Bartsch particularizes (at p 449 in the same volume) ten specimens in *clair obscur de deux planches*, and introduces Pilgrim as having the reputation of being the inventor of this sort of Wood Engraving.‡

Prints in chiaroscuro.

Durer.

H. Baldouin Grün. Pilgrim

"The beautiful Virgin of Ratisbon," after the picture in the Cathedral of that city, is mentioned by Strutt as an admirable work in two tints by *Albert Altdorfer*, whom we before named. (See Note (W.) at the end of Engraving.) Of this work, he adds, that there are some few impressions from the single block on which were engraved the outlines without the half tint. *Louis Businck*, whom we also mentioned before, (Art. 29.) is celebrated for some very masterly cuts in chiaroscuro.

Altdorfer.

Businck.

Modern School of Xylography.

(31.) We now come to the Wood Engravers of the XVIIIth Century, to whom, according to the arrangement proposed, (Art. 26.) we give the name of modern masters in Xylography. The number of these artists is so small that they can occupy but a very short space in our columns. In fact, Xylography was given up for a new branch of the Art more effective, and perhaps less difficult of execution: and Copper-plate Engraving, (especially after the superior facilities afforded by the introduction of the etching needle,) began rapidly to supersede the use of prints from wood, even for the illustration of books.

Confined chiefly to Italy, France and England.

Xylography in the XVIIIth Century, and up to our own times, seems confined to Italy, France, and England. In Italy, a Venetian Nobleman, the Count *Antonio Maria Zanetti*, born at Venice in 1680, became celebrated both as a collector and as an artist. Papillon, his contemporary, born eighteen years after, bears testimony to the beauty of many works of Zanetti in chiaroscuro, *gravures en camaïeu à trois planches ou rentrées depuis* 1720 *jusqu'en* 1740. They are after drawings by Raffaelle, Parmegiano, and other great masters, most of which the Count purchased at the sale of the Arundelian collection. He was assisted in this work (to which he added several etchings, and which altogether contains eighty-nine prints on copper and wood) by his nephew of the same name, the librarian of St. Mark at Venice. Zanetti has not escaped censure from such as value excellence more than rarity, for his exclusive spirit in burning his blocks and destroying his plates, after taking an inconsiderable number of impressions. Another Italian, and a native of Venice, is *Domenico Rosetti*, who flourished as an Engraver in 1720. He is styled an Engraver in copper as well as wood: and was fortunate in his patrons, the first of whom, an Italian prelate, Giovanni Francesco Barberigo, gave him his education at Verona; and a subsequent patron, the Elector Palatine, by whom he was invited to Dusseldorf, expressed his esteem by gilding the plates (after a few impressions) of the "Triumphs of Alexander."

Modern Xylography.

Rosetti.

In France, the activity and ingenuity of *Jean Baptiste Michel Papillon*, son of the last mentioned of that name, (Art. 29.) called the younger, brought the Art into greater notice than had ever been bestowed upon it in that Country. The encouragement which the policy of Louis XIV. had extended to works of taste and to the fine Arts, was not discontinued during the long reign of his profligate successor: and Papillon, like many other men of inventive minds, raised himself to fame by the novelty, if not the solidity, of his pretensions. He was born at Paris in 1698. Of a bold and independent spirit, with a mind devoted to his Art, and apparently self-educated as to literary pursuits, he put forth his well-known Treatise, historical and practical, on the subject of Wood Engraving: a Work of most amusing *naïveté* and originality, but abounding in historical errors.* His researches, however, are of great extent, and his evidence respecting any fact of which he was personally a witness, is allowed to be perfectly honest and trustworthy by his severest censurers. He was elected, in 1733, member of the Society of Arts at Paris. His Treatise contains many fine examples of his skill in Engraving, where a clear and pleasing effect is produced by single strokes and without cross hatchings. Two specimens are also given of four blocks, each to illustrate his description of cuts in chiaroscuro. His best performances are considered those prints which, in conjunction with Nicolas le Sueur, he executed after the designs of Bachelier, for a fine edition, in four volumes folio, of *Les Fables de Fontaine*. Papillon died at Paris in 1776.

J. B. M. Papillon.

Nicolas le Sueur was born at Paris in 1691, and died there in 1764. He was the son of the last-named Pierre le Sueur, (Art. 29.) and is celebrated by his biographer and contemporary artist Papillon, as being remarkable for some very fine cuts in chiaroscuro after Raffaelle, Parmegiano, and others of the high School in Art. These, Le Sueur executed for M. Crozat, for the Messrs. Mariette, for Count Caylus, &c. (V. *Traité de la Gravure en Bois*, tom. i. p. 411.) Papillon adds, that Nicolas would have attained absolute perfection as a Wood Engraver, *si l'autre genre de gravure en bois ordinaire et délicate de vignettes, fleurons, &c. il s'y fut attaché a y donner du feu, du goût, de l'entente, et du clair obscur, mais ses tailles toutes d'une teinte, rendoient ses gravures sans éclat, et sans dégradation ou augmentation de couleur.* The writer likewise commemorates a sister of Nicolas, named *Elizabet*, as a popular artist in Xylography, and acknowledges the assistance which N. le Sueur and himself obtained from the talents of

N. le Sueur.

Elizabet le Sueur.

* If priority of dates, says Bartsch, is to settle the question, we have the "Rhinoceros" of Albert Durer, A. D. 1515; a portrait after the design of Hans Burghmair, 1512; a portrait of Pope Julius II., 1511; the same date upon "Adam and Eve," after the design of J. B. Grün; and the date 1509 upon a work after Ebend, called "The Witches riding." (*Hexenritt.*) V. *Anleitung, &c.* 1 thiel, sec 639.

† The "Rhinoceros" is numbered 136 in Ottley, (p. 753.) and 126 in Bartsch. (*Peintre Graveur*, vol vii.) The "Holy Family" is numbered 10. (*Ibid.*) "The Crucifixion," No. 27 in Bartsch, is No. 132 in Ottley.

‡ See Note (X.) at the end of Engraving.

* To all lovers of autobiography, Papillon's writings are a treasure, and may be classed with those of another most entertaining and kindred original, Benvenuto Cellini.

Engraving. a pupil named Le Fevre, who, in 1759, or 1760, lost his reason, and became incurable.*

Le Fevre. From France the Art, in its modern state, seems to have crossed the Channel to England, if we put down as the earliest name worth notice, that of *John Baptist*

Jackson. *Jackson*,† who for some time received instructions at Paris from J. B. Michael Papillon, and was employed by him and others in that Capital.

Kirkall. *Edward Kirkall* was born about 1695 at Sheffield in Yorkshire. He was the son of a locksmith, and quitted his native town to engrave arms, stamps, ornaments, and cuts for books in London. It appears to us not improbable, that he was the Engraver of several vignettes in a Latin edition, 12mo., of *Terence*, published in London A. D. 1713, and very favourably commented upon by Papillon, (tom. i. p. 323.) who refers to the letters E. K. as the initials of the English Engraver. If this be so, Kirkall, according to the same critic, was the first instructor of Jackson above-named.

The Bewicks. But the persons to whom modern Xylography is most indebted are two brothers, *Thomas* and *John Bewick*, born at Overton, near Newcastle upon Tyne, whose prints for a *History of Quadrupeds*, published there in 1790, 8vo., first introduced them to the world of Art as original and powerful contributors to its advancement. A *History of British Birds* followed in 1797, but the death of John in 1795 of a consumption had meanwhile dissolved their affectionate partnership. Thomas, however, has lived to transmit through numerous pupils the revival of this branch of Engraving. In 1795 the Poems of Goldsmith and Parnell, published by Bulmer, 4to., are illustrated by these artists; and the year following Somerville's *Chase*, similarly adorned.

Modern Xylography.

Branston. *Robert Allen Branston* was a native of Lynn, in Norfolk, who about A. D. 1800, when in his nineteenth year, settled at Bath, as a general Engraver and Herald-Painter. Emulating, however, the reputation of the Bewicks in Wood Engraving, he undertook some cuts for a work descriptive of that ancient city. He found, however, very insufficient support by this occupation, and came to try his fortune in London, where he maintained himself for a while as an Engraver of music. Xylography, however, was by this time reinforced with the talents of *Nesbit*, *Clennel*, and *Hole*, as subsequently by *Bonner*, *Harvey*, *Thompson*, &c., and public encouragement again called forth the industry and eminent graphic powers of Branston. He was employed after this in most of the Xylographic publications of his day till his death, in 1827, at his house at Brompton.*

Instruments and materials. (32.) Before concluding our account of Xylography, some particulars may be expected on the subject of the materials and instruments employed for this branch of Art, and the methods of applying them. These will, perhaps, be best described and understood by introducing, at the same time, a brief reference to the practice of Line Engraving on metal in its simplest form, unassisted by and unconnected with etching or other processes. A comparison between the mode of operation on wood and that on copper-plate (one mode being the exact reverse of the other) may give greater distinctness to both. For the same distinction here exists which was remarked between seals and medals, *sunk* or *caved* work and *raised* work. (Art. 2—5, and note (A.) at the end of ENGRAVING.) The lines which are to receive the ink on the block previous to an impression are so many level ridges standing out in relief, like printers' type; and coming, when printed, into immediate contact with the paper, so as to indent it. The lines on a copper-plate, on the contrary, are so many channels hollowed in the metal, within which the ink is enclosed, and which in printing require the paper to be forced into them, in order that it may come into perfect contact with their contents: and the paper thus pressed will show ridges of greater or less prominency in proportion to the depth of line on the copper. It is manifest, therefore, that for the purposes of Wood Engraving such tools must be provided as will cut away all parts of the wooden surface which are not intended to give impression upon the paper. Knives, gouges, and chisels, of various forms and dimensions for accomplishing this end, are carefully described by Papillon† in the second volume of his *Traité de la Gravure*

* Le Fevre assisted in the more delicate touches for the wood cuts published with the *Fables de Fontaine*. Papillon's manner of introducing Le Fevre's malady has led Heineken to presume that poor Papillon himself had at one time impaired his faculties by over-application. *Par un accident commun à plusieurs graveurs, aussi bien qu'à moi, Le Fevre est devenu aliéné d'esprit en 1759 ou 1760 sans avoir pu être guéri: de même qu'un jeune homme nommé Guignard, &c.;* and then he goes on, in his favourite strain of gossip, to relate a similar case. Mr. Ottley looks upon the phrase *aliéné d'esprit*, as a mere pleasantry of expression common to French writers. (*History of Engraving*, p. 23.) This Frenchman, however, is, we think, an exception, and seems throughout his whole book to be too seriously intent upon the subject of it to have any time or inclination for being witty.

† The birth-place of Jackson is not mentioned. He flourished from about 1720 to 1754. Papillon accuses him of having ungratefully endeavoured to pass off and sell a surreptitious copy of one of his (Papillon's) Works for his own; a discovery which led to his dismissal, and subsequent want of employment and of subsistence at Paris. (*Traité de la Gravure en Bois*, tom. i. p. 327, 328.) He removed to Rome, and thence to Venice, where he became celebrated for several wood-cuts in imitation of drawings by the ancient masters. A set of seventeen large prints in chiaroscuro was published at Venice by Pasquali, A. D. 1745, in which Jackson, by a new method, undertook to imitate in colours like those of the originals some choice works of Titian, Paul Veronese, Tintoretto, Basano, and others.

"His first essay of this kind," says Mr. Savage. (*Practical Hints*, p. 15.) "was at Venice in 1744, when he published six landscapes." "All the prints in colours that I have seen," adds the same writer and artist, "show a failure; for the oil which he used in the ink has not only stained the paper on which the subject is printed, but also the adjoining leaves." Mr. Savage goes on to remark that the use of oil in coloured printing inks not only defaces the paper, but changes the colours. We may subjoin, that a similar fault very painfully appears in the chiaroscuro specimens of Papillon. See Note (M.) at the end of ENGRAVING.

From Venice Jackson returned to England, where probably he died. Among Jackson's prints in simple Xylography is a "Descent from the Cross," after Rembrandt, conveying, says Strutt, in a spirited manner, a good idea of that great master's mode of sketching.

* Some of the best specimens of the modern English School of Wood Engraving are to be found in a volume entitled *Religious Emblems*, published in 1810 by Mr. Ackermann, of the Strand, London. The Work also of Mr. Savage, alluded to in the preceding note, is remarkable, and contains, together with some aspiring attempts in chiaroscuro, which have failed through their excessive complexity, several of the finest productions from the burins of Branston, Nesbit, Bonner, Thompson, &c. after drawings by Thurston, Callcott, W. M. Craig, W. H. Brooke, J. Varley, W. Hunt, J. P. Neale, &c. Mr. Savage mentions J. Skippe, Esq., an amateur, among the improvers who had preceded him, of coloured Wood Engraving in cameo. For examples of modern skill and patience in cross-hatching, see the *Typographia* of Mr Hansard.

† See Note (Y) at the end of ENGRAVING. The author of a modern Work on Decorative Printing observes, that the improvements which have taken place since Papillon wrote have nearly superseded the practical parts of his book. Savage, *Practices*

Engraving. *en Bois*, (tom. ii. p. 11—47.) together with the proper ways of sharpening and adjusting them.

Method of printing wood-cuts differs from that of copper-plate Engravings.

Another main point of difference between these two branches of Engraving is seen in the mode of taking off impressions; wood prints have the capability of being placed in the body of a printed work surrounded by the letter-press. They receive their share of the same ink with which the types are coloured, and can be printed at the same moment with them. Metal plates, on the other hand, incur the additional expense and labour of separate printing, by means, generally, of pressure between two cylinders and in a press of peculiar construction. The superiority, too, of wood over metal as to durability is remarkable.*

Hints, p. 63. See also Note (M.) at the end of ENGRAVING. The instruments now employed by Engravers on wood are generally similar and similarly handled to those of Engravers in copper. A tool of the same kind, and sometimes of exactly the same form with the common graver or burin, (see Note (B.) *ibid.*) was probably first introduced by John and Thomas Bewick. It is held in the same manner as for Engraving on metal. Sometimes, too, the edges which cut away the wood are rounded; (pl. i. No. 3,) sometimes squared, (*Id.* No. 4,) similarly to the occasional instrument of the Chalcographer; and sometimes the whole of the steel bar is of a rounded or cylindrical form.

Various sorts of wood have been used in this Art; occasionally pear tree, lime, sycamore, and other soft woods; but the only material in use at the present day is box. The wood, too, is not now cut into *planks* as formerly, (namely, with its grain parallel to the engraved surface,) but into *rounds*, or transverse sections, so that the engraved surface must always lie at right angles to the grain, and present, in every part of it, a uniform resistance to the edge of the tool employed. Thus is gained an advantage tending essentially to accuracy as well as facility of execution. The box tree grows in Turkey to a size considerably larger than in this Country. See *Isaiah*, xli. 19. and lx. 13. where the fir tree, the pine, and the box tree are mentioned together as forest trees, and styled the Glory of Lebanon. The Turkey box is consequently a frequent article of importation; but for small works and vignettes our English box-wood is excellent. A species from America, larger than that from Turkey, has been tried but not found so good. The rounds or transverse sections of the tree are sawn nearly an inch in thickness, so as that in printing they may be brought to lie evenly with the type. Each block is next carefully scraped and polished to a degree of smoothness proper to receive the drawing; and the drawing generally is made upon it by the original designer either in pencil or with a pen. Frequently it is shaded with Indian ink or sepia in a very finished manner, giving the fullest effect of chiaroscuro of which the artist is capable, and leaving to the Engraver his choice of whatever kind of lines (Art. 14. 15.) he has found by experience to be most effective.

* Where any tolerable care is taken by the Printer, one hundred thousand or one hundred and fifty thousand impressions may be taken from a Wood Engraving without material change to the block: whereas from copper-plate, although engraved deeply and with a high burin, scarcely three thousand perfectly clear impressions can be obtained. From copper-plate, says M. Bartsch, executed throughout with high burins, the first fifteen hundred impressions taken are generally perfect; the next fifteen hundred become gradually more and more defective in harmony; and the remaining thousand are altogether grey, monotonous, and feeble. Plates worked superficially, i. e. with the low burin, give one thousand impressions less. (*Anleitung, &c.* vol. i. p. 11.) Even a steel plate will not give more than ten thousand without betraying evident marks of the wear occasioned by rubbing the colour (according to the same process as with copper) into the engraved lines, and at the same time clearing it away entirely from the surface of the plate previous to each impression. To this friction the wood block is not exposed. The only friction to which the block can be subjected, besides that from the ink roller or dabber in charging it with ink, or from the pressman in printing, arises from the operation of cleansing it after use. Papillon (*Traité, &c.* vol. ii. p. 375.) recommends for this latter purpose a soft brush, in form like a hat brush or brush for shoes; it must be dipped in a lie made by boiling half a pound of pearl ashes in three pints of water, and then passing the liquid through a linen strainer. The ink immediately on application of the brush quits its hold of the block, which must then be further cleansed by the application of clean water and a clean sponge. If the liquid be warm how discovered and when. its cleansing virtue is more active. Mr. Savage recommends, instead of the lie, spirits of turpentine; (*Hints, &c.* p. 46.) and Papillon, *faute de cette drogue*, (alluding to the pearl ashes,) recommends warm water and common soap, not, however, of an acrid quality: otherwise fresh water must be applied. Great care must be taken in drying the block, so that it shall not be warped. This is often the case with large cuts if left all night upon the press stone. "Let them be laid," says Mr. Savage, "with their faces downwards upon the imposing stone with a few thicknesses of damp paper underneath, to place the flat side of a planer upon them: in the course of six or seven hours each block returns to its former state." (*Ibid.*) Much application of water in cleaning the block or otherwise should be avoided if possible. Persons careless of this rule have been known to steep a block in water in order to cleanse it; and by this steeping are sure to swell the lines of the print. Papillon is so nice upon this point, that in order to avoid the effects of moisture from the breath in Engraving, he advises the artist to wear on his chin a covering or guard, to which he gives the name of *mentonière*. (vol. ii. p. 56.)

Chalcography. (33.) The invention of taking impressions from engraved plates of metal has been described by Vasari in

Chalcography. Ink impressions from metal plates

The friction, on the other hand, in printing from copper-plate is considerably greater than any to which wood-cuts or type can be exposed. And that this friction must occur between each impression is evident from the following description by Mr. Hansard. (*Typographia*, p. 802.) "The workman takes a small quantity of the ink upon a rubber made of linen rags strongly bound about each other, and with this smears the face of the copper-plate as it lies on a grate over a charcoal fire. (Here the writer states in a note the invention by Mr. James Rainshaw, approved and rewarded by the Society of Arts in 1818, for heating the plates by steam, and thus avoiding the noxious fumes of charcoal.) The plate being sufficiently inked, he first wipes it over with a foul rag to take off the extra colour; then with the palm of his left hand, and then with that of his right, he continues to free the surface of the plate from all the unnecessary ink which it had received; and to forward this operation of wiping he dries the inside of his hands from time to time by rubbing them on a lump of whitening. In wiping the plate perfectly clean without taking too much ink out of the strokes consists the practical proficiency of the workman in his Art. The plate thus prepared is next laid on the plank of the press, and upon it is placed the paper, moistened in the same manner as for letter-press, in order that it may more freely receive the ink and impression. Two or three folds of flannel are then brought over the plate, and things being thus disposed, the press is set in motion by pulling the arms of the cross, by which means the plank bearing the plate and paper is carried through between the rollers, which pinching very forcibly and equally press the moistened and yielding paper into the strokes of the Engraving, whence it draws out a sufficient portion of the ink to display every line of the intended print."

Printing from steel plates is perfectly similar; so that the quantity of friction must mainly contribute to efface the Engraving from a surface of either metal. The discovery, however, by a celebrated American, Mr. Jacob Perkins, of multiplying engraved steel plates by means of steel cylinders, seems to set at nought the powers of wear and tear and of time. A steel plate is first softened to such a degree of ductility as will permit the artist to use the finest tools with nearly the same ease as if he were engaged on a copper-plate. When his Engraving is finished, the plate is hardened by a process of carbonization, and is then not only capable of producing from the press a hundred times as many impressions as a copper-plate would yield, but is also made instrumental to the formation of other plates almost *ad infinitum*, by a transfer, mechanically, of the Engraving to those other plates, so that each new plate becomes a perfect fac simile of the first. The transfer is made by rolling a cylindrical piece of softened steel over the hardened plate with a pressure sufficient to give the cylinder a complete impression in *relievo*. The cylinder, being then hardened, is used for transferring the subject to any required number of plates, each of which may be again employed for the same process in a course of endless reproduction.

But, again, as a set-off against this method of giving imperishable permanency to the labours of the burinist, the Wood Engraver enjoys the advantage of *stereotyping* his productions. The impressions from the fac simile, in type metal, of his Wood Engraving may be multiplied to millions and tens of millions of copies, while the original block remains entirely inert and perfect, and liable to no other friction than has occurred in forming the first mould. Of

Engraving. so confused a manner that a variety of conjectures have been hazarded to guess his meaning. All agree, however, that *Maso Finiguerra*, a Florentine goldsmith and enameller, during the process which was usual of constructing an imitation, in sulphur, of his engraved work, found out that wet paper pressed upon the plate would take up whatever colouring substance remained in the engraved lines. It appears to have been the practice of Maso and his brother artists, after the completion of any highly finished work engraved in silver, and to be filled with niello, (Art. 9.) to take an impression of the plate with earth. Upon this impression, as upon a mould, they poured liquid sulphur, and thus obtained a fac simile of the metal Engraving. The hollowed lines in the sulphur were then filled with some black material, analogous to the niello intended for the silver plate; and these sulphurs were subsequently preserved in the studio of the artist to remind him of his labours.* Chalcography.

(34.) We shall now give the names of chalcographic artists, according to the date of their proficiency, classing them first as proficients in the simple processes of this branch of Engraving; and, secondly, in what we have termed (Art. 12.) its compound processes. By simple processes we understand Division of Chalcography into *simple* and *compound*.

1. Stroke Engraving, or Engraving in the line manner executed entirely by strokes cut with the graver.
2. Engraving with the dry point.
3. Etching. Simple Chalcography.

During this enumeration we propose to take the different Schools of the Art in the following order: 1. The Italian. 2. The German. 3. The Flemish and Dutch. 4. The French. 5. The Spanish; and 6. The English.

(35.) To begin, as before, with ITALY. *Maso* or *Early school of Italy with the graver only.*

---

the several operations in casting and printing stereotype Mr. Hansard has given a minute account, (p. 825—888.) which it would far exceed our limits to abridge within any intelligible compass. We recommend the curious reader to visit some of the larger printing-offices. That of Mr. Clowes, the printer of these pages, exhibits in active service almost every variety of letter-press machinery. The extraordinary sale which has of late years encouraged, and continues to encourage, cheap periodical works in this Country, has led to proportional exertions in British Xylography. As one instance, among several, of the popular demand for these useful productions, and also of the multiplying power of stereotype just alluded to, the press of Mr. Clowes has frequently issued between one and two hundred thousand copies of the *Penny Magazine*, a weekly publication, for which some of the finest modern Engravings in wood have been executed. We should like to see, out of the best of these prints, some careful impressions on Chinese paper from the blocks.

Great ingenuity has in very many ways been exercised for modern improvement in Xylography, but (as must naturally happen on the revival of any Art) many contrivances which are almost a century old have been claimed as recent inventions Papillon, in a supplementary tome to his Treatise on Wood Engraving, gives a practical account of his discoveries, and of his own progress in the Art from the age of eleven (which must have been in the year 1709) to the date of that publication in 1766. He remarks, that his article in the *Encyclopædia* was incomplete, and proceeds to detail further particulars which he considers necessary for explaining his principles, and for making his example useful to such as should come after him.

1. In the first place he appears to have applied himself with great assiduity to *drawing* and *designing*. He thus prepared himself to acquire considerable facility of execution, and contrived to shade his work with washes of Indian ink (p. 16.) upon the block itself, instead of using the more elaborate and mechanical process in which he had been educated, and by which the lines of a previous design were transferred from paper to the wood just as they usually are to copper-plate, but subject to subsequent correction.

2. He speaks of a method of giving softness to his distances, (*lointains*,) by *scraping* that part of his block before he made the design, and thus lowering the surface in those places which required lines of great delicacy and fineness. Occasionally, too, he *preced* his block. (p. 49.)

3. He devised a similar mode (p. 45.) of giving greater strength and fulness to such lines in his fore grounds as happened to be too finely cut, and too feeble, from their thinness, for representing near objects with proper force. By scraping the surface in any part he had shaded with faint thin lines, he found that they became broader, and consequently better capable of being charged with colour.

4. In vignettes, tail-pieces, and ornamented letters he adopted a plan (p. 38.) of making the *outside* edges of the engraved work *lower than the middle*, by which means he not only avoided hardness and harshness, but found the edges of his block less apt to split or be crushed by a strong pull from the pressman.

5. He suggests (at p. 74.) that by means of different successive blocks for one and the same subject, the most difficult and complicated hatchings of copper-plate might be imitated or even rivalled, since by the use of a *fainter ink for distances* and delicate parts of the work any required diminution of force would be attainable. Respecting this latter suggestion, we observe, that methods have been attempted of imitating the difficult cross-hatchings to be found in the works of ancient masters in Xylography, by the use of two or more blocks, one for each crossing of the strokes. But that this was not the method of the old xylographic schools is manifest from the difference of colour at the points where lines in a print so executed intersect each other; whereas the colour in a print from one block is uniform throughout.

* An elaborate Treatise on works of niello has been published at Paris by M. Duchesne, to which is appended an ample *catalogue raisonnée* of four hundred and twenty-eight nielli in silver, including impressions of nielli on sulphur and paper. The XVth and latter part of the XIVth Century produced several Italian workers of celebrity in niello. *Forzone*, brother of the painter; *Gaspar Spinèz* of Arezzo; *Caradosso* of Milan; *Francesco Rubelini*, or *Francia*, painter as well as goldsmith and medallist of Bologna; *Giovanni Turini* of Sienna; together with the artists at Florence whose metallic works adorn the Church of San Giovanni in that city; *viz. Matteo Dei*, *Maso Finiguerra*, and *Antonio Pollajuolo*, the last of whom learned, it is said, the Art of Painting from his brother Pietro, as he did that of Engraving, for the purpose of impression, from Finiguerra. Finiguerra was more particularly celebrated for plates or *paxes* worked in niello with scriptural ornaments, tendered to the devotees at the altar, in the service of the Mass, with the salutation *Pax tecum*. Hence the name.

M. Bartsch, with other writers who contend for German priority in graphic discoveries, confesses himself unable to explain actually and circumstantially how the art of taking impressions upon paper from plates of metal was introduced into Germany. He concedes the invention to the Florentine Finiguerra; but adds, with a very pardonable air of national gratulation, that the Italians, compared with their German rivals, have made little or no progress in the application and improvement of this useful discovery. He even goes so far as to maintain that the early Italian prints were not taken from the metal, but from the sulphur fac simile; at a time when strong impressions, full of colour, and evidently taken from the plate itself by means of a regular press, were common in Germany. Our Countryman, Mr. Ottley, however, has examined, in a spirit of fair criticism, M. Bartsch's argument, and shown the impracticability of taking impressions from sulphur, such as remain to us of the early Italian School. (See Ottley's *History of Engraving*, ch. v.)

We have just learned, while making this reference, the appointment of this gentleman to the conservatorship of the prints in the British Museum, an appointment at which, in common with every friend to the advancement and reputation of the Art in Britain, we rejoice.

Mr. Ottley, after showing (*History of Engraving*, p. 340.) that Finiguerra's impressions were taken, to all appearance, not from the sulphur, but from the plate itself; and after remarking the improbability of such great obtuseness in Italian intellect as would prevent Maso and numerous other goldsmiths his Countrymen from adopting the more obvious and more effectual method in preference to one almost impracticable by means of so brittle a material as sulphur; adds, respecting the greyish tint of the Italian prints, that this circumstance gives us only to understand the sort of ink they used to have wanted consistency. Some prints, too, being taken off before the invention of a proper press, would doubtless be imperfectly printed: and even after the general spread of that invention it would not follow that every goldsmith who knew the use of such an apparatus must of course have one in his possession. Without a proper press the artist would be forced to substitute the friction of some smooth body, or the insufficient pressure of a common roller.

Engraving. Finiguerra. *Thomaso Finiguerra*, whom we have mentioned, (Art. 33.) and who is said to have been born about A. D. 1424, communicated his discovery of impressions from metal to another goldsmith, his fellow-townsman, and his junior about twelve years,* *Baccio Baldini*. Vasari's account of Baldini is extremely brief, and only mentions him as being an inferior draughtsman, indebted for designs to the pencil of *Sandro* or *Alessandro Botticelli*, another contemporary goldsmith, who had some celebrity, both as a Painter and Engraver. A much superior artist, however, (particularly as regards the naked figure,) was another Florentine goldsmith, *Antonio del Pollajuolo*, born in 1426, who died in 1498. He was one of the most eminent of his time in Painting and Sculpture.†

Baldini. Botticelli. Pollajuolo.

Gherardo

Another Engraver of this period is *Gherardo*, a miniature painter of Florence, and worker in mosaic, whom Vasari mentions as having shortly before his death (which happened about 1490) taken up Engraving in imitation of the German style of Martin Schöngauer.‡

Robetta is another name slightly noticed by Vasari.* Among these Florentine artists, *Leonardo da Vinci* is thought to have exercised the graver. An interesting specimen has been preserved in the cabinet of Thomas Wilson, Esq., of which a fac simile is prefixed to a Work descriptive of that gentleman's unique collection, entitled *Catalogue of the Prints of an Amateur*, 4to. London. 1828.

Chalcography. Robetta. Leonardo da Vinci.

Meantime the Venetian States and the other Northern districts of Italy were not wanting in contributors to the advancement of the new Art. It is even doubted whether the next named artist did not precede the School of Florence in the publication of Engravings. *Andrea Mantegna*, born near Padua in 1431, whose celebrity as a painter we have already noticed, (PAINTING, p. 475—478.) was one of the earliest practisers of Line Engraving, and did more towards its progress in Italy than perhaps any of his contemporaries by his superior knowledge of design. Mantegna died at Mantua in 1506.† *Giulio* (Julius) *Campagnola*, (born 1498,) and *Domenico Campagnola*, of the same family, (who flourished in 1517,) the latter one of the best of the early scholars of Titian; the former the undoubted improver and (by some) reputed author of the dotted method of Engraving,‡ contributed jointly with Mantegna to the fame of their native Padua.

Andrea Mantegna. Giulio and Domenico Campagnola.

---

* Mr. Ottley places the birth of *Maso Finiguerra* about A.D. 1410. Maso died at Florence at an advanced age. His discovery is dated by Heineken A. D. 1460; but a much earlier date (A. D. 1440, or even a few years earlier) can now scarcely be denied to it ever since the Abbé Zani's good fortune in finding among the ancient prints of the National Cabinet at Paris an identical impression taken off by Finiguerra himself from the silver Pax already named in the last note as belonging to the Church of San Giovanni at Florence, and representing the Coronation or "Assumption of the Virgin." Its perfect resemblance to the sulphur in the possession of his friend the Count Seratti drew the Abbé's first attention to it; and his joy in afterwards ascertaining fully the genuineness of the production, is expressed with a zeal most unaffectedly characteristic. See his account of the transaction published at the time, and translated in Mr. Ottley's Work. "The workmanship of the Pax," observes the Abbé, "which Finiguerra probably began in 1451, (the plate is registered 1452 in the archives of the Church it belongs to,) fully shows that he must have been at that time not merely a man greatly advanced in his Art, but a master of high credit and reputation." It has been well remarked that M. Mariette, who had the charge of the collection of the King of France, and who consequently held this remarkable print under his key without knowing it, boasted vainly of connoisseurship while corresponding A. D. 1732 with Cav. Gaburri of Florence, about the origin of Chalcography, while he left this document unnoticed, and only kept this valuable relic of Italian Art to be discovered by a foreign amateur in 1797. Mr. Ottley, at p. 308 of his Work, presents his reader with a fac simile of Zani's discovery; and also at p. 304 with another print, a fac simile, after one in his private collection, and regarded by him as a proof impression from some work of niello, probably by Finiguerra or some Florentine artist about the middle of the XVth Century.

† A few characteristic fac similes from the works of Baldini, as well as from those of Botticelli and Pollajuolo, are given by Mr. Ottley, vol. i. of his *Hist. of Engraving*; where likewise will be found a translation of Vasari's Life of Botticelli, with an examination of his works and merits. Botticelli was born at Florence in 1437 and died there in 1515. The Engravings for the edition of Dante, printed at Florence by Nicolo di Lorenzo della Magna, in 1481, are from the burins of Baldini and Botticelli. But a previous publication had appeared in 1477, entitled *Monte Santo di Dio*, with engraved illustrations, probably by the same artists. This is thought to be the first book embellished with copper-plates, of which the precise date has been ascertained.

‡ Mr. Ottley (*Hist. of Engraving*, p. 457.) introduces a subject, "The Assumption of the Virgin," as probably from the burin of Gherardo, and remarks of it, that the shading (which in the Engravings ascribed to Baldini is for the most part effected by close hatchings crossing each other in various directions, but without curvature) is here represented by fine curved strokes, terminating, in many instances, on the light parts of the figures, with dots or other short delicate touches of the burin in the manner used by Martin Schöngauer and other ancient Engravers of the German School. We learn from Vasari that the prints of Schöngauer found their way into Florence in considerable numbers many years before the end of the XVth Century.

* He is named only as member of an artist's club at Florence, called "La Compagna del Paiuolo," founded by his friend Giov. Francesco Rustici, about 1511 or 1512. The Society met alternately at each other's houses, to converse on the Arts, and to sup together. The works of *Robetta* prove him, says Mr. Ottley, (who gives an account of twenty-eight Engravings by him,) to have been no ordinary goldsmith. In small draped figures he is frequently graceful, but is not successful in the naked figure. He also sometimes introduces a few dots or short curved strokes after the manner of Schöngauer into his shadings, which appear finished with close hatchings thrown in various directions. Bartsch enumerates twenty-six plates by this artist, but erroneously dates their execution so late as the year 1500, contrary to Huber, Ottley, and others, according to whom he flourished about or before the time of the Society of artists above mentioned.

† In those days nothing better was expected in an Engraving than that it should perfectly resemble a pen and ink drawing: and this imitation seems to have been the utmost aim of *Mantegna*. His plates are generally shaded by single strokes or parallels in a diagonal direction across the plate, without cross-hatchings. In this respect they are like those of Pollajuolo, but with figures still better drawn, and are executed in general after admirable designs of his own. His works do honour to his instructor and patron, Francesco Squarcione, of whom the Abbé Lanzi observes, that if he was not himself the best artist of his day throughout the State of Venice he was certainly the best qualified to teach others. M. Bartsch gives a *catalogue raisonnée* of twenty-four subjects by Mantegna, and his authority is quoted by Mr. Ottley, who states his opinion that Mantegna was early initiated in the Art, and engraved several studies of his painted works some time previous to their appearance on canvass.

‡ Of *Giulio* only nine pieces are recorded by Mr. Ottley, and of *Domenico* twelve. M. Bartsch, (*Anleitung, &c.* sec. 386, 521. Ed. 1821,) describing certain works executed by dots, (*mit der goldsmieds-punze*,) records a plate executed in the finest style of punching, the work of Giulio Campagnola, and says it may be considered the first attempt at this style. Giulio, he adds, composed it after another copper-plate from the burin of Girolamo Mocetto, (Art. 27.) but has reversed the figures and substituted a new back-ground. A fac simile of this plate, which represents "John the Baptist in the Wilderness," is given opposite page 768 of Mr. Ottley's *Hist. of Engraving*. Another earlier print in this style, with the initials P. P., is noticed in Mr. Ottley's *Enquiry, &c.*, p. 474. The *Catalogue of an Amateur*, however, alludes to an Engraving of the "Virgin and Child," described as a dotted specimen of the early German School, which perhaps may claim precedence of both the plates first mentioned; though Giulio Campagnola seems undoubtedly the first who brought this method of operating to any degree of perfection.

Engraving.

In the State of Milan, *Bramante d'Urbino*, best known as an architect, directed his powers to fresco Painting, and the use of the graver. He died in 1514. Verona gave birth to *Girolamo Mocetto*, whom we have before mentioned, (Art. 27.) and Vicenza, nearly at the same time, to *Benedetto Montagna*, who flourished about A. D. 1500: also, probably, to *Marcello Fogolino*.*

Bramante d'Urbino.

Mocetto.

B. Montagna.

Other names might be added to complete the early School of Italy, as *Altobello*, a scholar (according to Padre Testa) of Bramante, and whom Vasari relates to have painted with considerable ability a life of Christ conjointly with Boccaccio Boccacini in the Duomo of his native city Cremona; *Nicoleto da Modena*; *Giovanni Batista del Porto*; *Giov. Maria da Brescia*; and his brother *Giov. Antonio*.† *Beccafumi*, the Wood Engraver, (Art. 28.) also performed occasionally on copper and with the graver only. We might here also mention, if our limits permitted us, various unknown Engravers of Italy whose works are distinguished only by ciphers and monograms.‡

Altobello and others.

Advancement of Engraving coeval with that of Painting.

(36.) We now arrive at a period (the XVIth Century) when the Art of Copper-plate Engraving was to receive and to deserve greater encouragement in Italy, and when its progress became in some degree proportioned to the advancement which Painting at the same time manifested under the great founders of the Italian Schools. A celebrated Bolognese goldsmith named Francesco Rabolini, but oftener Francesco Francia, who engraved medals admirably, as well as some fine productions in niello, had also practised Painting with success in his native city. Among his principal scholars were his son *Jacomo*,§ and *Marc Antonio Raimondi*, born likewise at Bologna A. D. 1487 or 1488. Marc Antonio became, as Vasari relates, a more skilful designer than his master, and was an invaluable assistant in such works of niello as were fashionable at that time for ornaments in dress, &c. He quitted, however, the service of Francia to try his fortune at Venice, where we have already traced him copying upon plates of metal some woodcuts of Albert Durer.‖ (Art. 29. *Nuremburg*.) From the handling of Durer, Marc Antonio, already an expert burinist, was not the less eager to derive new lights. His object was to improve himself in every department of his Art; and when a print, very neatly engraved by him at Rome, "Lucretia," after a design of Raffaelle, became the means of introducing him to that great master, he was placed in a situation which every Engraver since must have envied him, and which of all others was the best and happiest for his purpose. During the short lifetime of Raffaelle, (born A. D. 1483, about eight years before him,) Marc Antonio was employed continually by that eminent master, who despatched to Albert Durer many of his prints as presents, and who frequently corrected his designs on the plates, or perhaps even assisted in their execution. Otherwise there seems no accounting for the exquisite identity with which the character of Raffaelle's pencil is preserved.* Among the numerous scholars of Marc Antonio, *Agostino Venetiano* and *Marco di Ravenna* were the two most celebrated. From the School, indeed, of this remarkable Engraver went forth professors who established his principles, not only in Rome, Venice, Parma, Mantua, Bologna, Ravenna, and other cities of Italy, but in some parts of Germany and the North of Europe.†

Chalcography

Marc Antonio Raimondi.

His pupils, German as well as Italian.

---

* A specimen of this master's rare and almost unattainable productions is recorded (*Catalogue of an Amateur*, p. 37.) in the collection of Thomas Wilson, Esq., a gentleman proud to claim and worthy of claiming kindred with our celebrated Countryman Richard Wilson, for whom see PAINTING, p. 496.

† *Giovanni Maria* flourished, as appears from his few prints, A. D. 1502. He was a goldsmith, a Painter, an Engraver, and an Ecclesiastic of the Order of Carmelites at Brescia, and, according to Orlandi, enriched the cloisters of that Convent with several fresco pictures. His brother Antonio is remarked as being more of a professed artist; and in his early works (some executed before A. D. 1500) adopted the style of Andrea Mantegna, but in some of his later productions imitated Marc Antonio Raimondi. He sometimes copied in reverse the prints of the latter, sometimes those of Albert Durer, and seems to have engraved frequently after drawings or pictures by Raffaelle d'Urbino or his School.

‡ Such works as are extant, both of these and the before-mentioned artists, are carefully described in the fifteenth volume of M. Bartsch's *Peintre Graveur*, and in Mr. Ottley's *History of Engraving*, p. 511—593. Among the "unknown," for example, is the "Master of the Caduceus," so called from his monogram, of whom twenty-four pieces, in a style resembling the School of Ferrara, are recorded.

§ To *Jacomo* Mr. Ottley attributes eight Engravings which he describes, *Hist. of Engraving*, p. 772.

‖ "It happened," says Vasari in his Life of Raimondi, "that at this time certain Flemings came to Venice with a great many prints engraved both in wood and copper by Albert Durer, which being seen by Antonio in the Piazza di S. Marco, he was so much astonished by their style of execution, that he laid out upon these prints almost all the money he had brought with him from Bologna." The attention, indeed, of artists in Italy had for some time been drawn to the progress of their German and Dutch rivals, who, though inferior to them as to graces of contour and chaste simplicity of design, yet went far beyond them in execution, and what is termed "delicacy of burin."

* These corrections might easily be made by Raffaelle with a dry point marking the intended course of the graver. Mr. Ottley concludes his *Hist. of Engraving* with an enumeration of three hundred and fifty-nine subjects engraved by *Marc Antonio*, and M. Bartsch, in vol. xiv. of his *Peintre Graveur*, (from which the catalogue is formed,) gives a description both of these Engravings and of the various copies of each print, together with a similar account of the numerous works of *Agostino Venetiano* and of *Marco di Ravenna*, his celebrated pupils.

† Among the foreign scholars of Marc Antonio, *George Pencz*, who passed his youth at Nuremburg, and his latter years at Brescia a former pupil of Albert Durer, was so far converted to the style of his new master as to be the author of works that resemble the best manner of Raimondi. The *Behams*, Bartholomew and Hans Sebald, (the latter a nephew and pupil of the former,) conveyed similar lessons in Italian Chalcography to Frankfort and Nuremburg; while *James Bink*, another German pupil of Marc Antonio, and native of Cologne, dispersed the same precepts as far as Konigsburg and the Court of Prussia, where he latterly resided. Of Bink, however, it is recorded that he never entirely relinquished the manner of the German masters.

But our business here is chiefly with the Italian pupils and followers of Marc Antonio. *Giulio Bonasone* was born at Bologna about A. D. 1498, and *Agostino de Musis* (above alluded to under his popular name Venetiano) at Venice about 1490. Strutt particularizes seventeen of Agostino's principal performances, and represents him as the introducer of that method of Engraving which is performed by dots only. So that he as yet divides the honour of that invention with Giulio Campagnola. (Art. 35.) Instead of parallel lines, Venetiano frequently uses dotted shadings on the naked parts of his figures. With whatever artist this practice originated, it was evidently the foundation of what moderns term *stippling*, or the *chalk manner*. Venetiano left two sons, *Lorenzo* and *Giulio de Musis*, who imitated, but with no great success, the style of their father. *Marco Ravignano*, so called from his birthplace Ravenna, (born about A. D. 1496,) but whose family name the indefatigable Abbé Zani discovers to be Dante, was an early intimate and fellow-student with Venetiano. During the life of Raffaelle, Marco di Ravenna and Venetiano worked jointly under their preceptor Marc Antonio, but after Raffaelle's death their plates are separately marked and dated, and show each to have been employed from that time on his own individual account. Of Di Ravenna it is observed that he marked but feebly the extremities of his figures. He died at Rome about 1550. *Giov. Giacomo Caraglio* was an Engraver worthy of the Marc Antonio School. He was born at Parma about A. D. 1500, but subsequently settled

Engraving.

(37.) When it is considered that the principles of chiaroscuro and the representation of local colour, as connected with Engraving, were at this time unknown, the progress of Marc Antonio Raimondi entitles him to our unqualified admiration. Italy, indeed, was now to become, in the eyes of applauding Europe, the only proper theatre for pictorial study; and a kind of mania, upon which we made remarks in another place, (PAINTING, p. 480.) prevailed among foreign artists, especially of the Dutch and Flemish Schools, for visiting this nursery of genius, and for being rocked in the Italian cradle. The result was fortunate for the Italian School of Engraving.

Cornelius Cort.

Cornelius Cort, born in 1536 at Hoorn in Holland, whose first instructor in the Art appears to have been Jerome Cock, an Engraver and Printseller at Antwerp, (and who engraved in early life several plates published there under the name of his master, as well as several others afterwards from various Flemish masters on his own account,) caught the general rage for travelling; and, ambitious of extending his artistic knowledge, undertook a journey to Venice, where for some time he resided in the house of Titian, and engraved some of Titian's finest pictures. He now rose superior to his former efforts, and adopted that characteristic breadth of manner to which chiaroscuro, neglected by his predecessors, was indispensable. Subsequently he settled at Rome, and established there a School which opened new means of improvement to the burinists of Italy.* Of his plates (more than one hundred and fifty in number) M. Heineken gives an ample account. He died at Rome at the age of only forty-two, when his reputation was at its highest, A. D. 1578.

Chalcography.

His pupils Ag. Caracci and others.

The most remarkable pupil of Cornelius Cort in Italy was *Agostino Caracci*, born at Bologna A. D. 1558, the eldest of three celebrated brothers brought up under their extraordinary cousin Ludovico. (PAINTING, p. 476.) Agostino was intended by his father for the business of a goldsmith, a business in that age connected, as we have seen, (Art. 36.) with the Art of Engraving; so that the young Engraver, when only fourteen, contrived to execute, in the style of Cort, some plates, at sight of which his cousin persuaded him to study Painting. M. Bartsch reckons the engraved works of Ludovico to amount in all to more than two hundred and seventy. He died in 1602. Of his pupils and followers, the two best were *Francesco Brizzio*, his fellow-townsman and friend, and *Giacomo Franco*, born at Venice about A. D. 1500; but Agostino for beauty, for outline, and for expression, left no burin behind him to be compared with his own.*

---

at Verona. *Enea Vico*, also of Parma, whose history we have abridged, (Art. 27. p. 738.) was another student who passed some time under Marc Antonio at Rome. M. Bartsch, who gives a descriptive list of four hundred and ninety-four pieces by Vico, contends that this artist confined himself to Engraving on metal; that he adopted at different times the several styles of the four last-mentioned artists, and that only about A. D. 1550 he formed a manner of his own, which was distinguished by delicacy and neatness even to excess, but that he never, as Huber reports of him, engraved at all on wood. He died about A. D. 1570. Of the same period and of the same School with Vico, were four remarkable Engravers from the family of *Ghisi* of Mantua: *Giovanni Batista Ghisi*, *Dinna* his daughter, together with *Georgio* and *Adamo*, believed to be his sons. The style of Ghisi, the father, bears, in the opinion of M. Bartsch, an especial resemblance to that of an anonymous Italian Engraver who marked his plates with the letter B upon a small cube; and is thence called the *Master of the Die*. Some of his plates have the letters B V without the cube, and the V has been thought to stand for Venetiano. The prints by this "*inconnu*" are admirably designed and beautifully engraved. His burin is extremely like that of Marc Antonio, whose disciple he probably was; and the only fault imputed to him is, that his figures want height, so that their heads look too large and their limbs too strong and muscular for their bodies.

* He engraved at Rome the greater part of those prints which have been called with truth the delight of every judicious collector. The Art hitherto had nearly been confined to small plates, but the style of Cort, open, grand, and forcible, in which boldness and freedom are seen combined with delicacy and clearness of effect, was adapted peculiarly for "subjects of large dimensions." Not only is his outline vigorous and correct, but his masterly handling has called forth from Basan (*Dictionnaire des Graveurs*) the affirmation that Cort was the best Engraver with the burin only that Holland ever produced. Strutt, however, says of him, that his burin was unequal and sometimes even slovenly; but he cannot withhold his praise from Cort's "lightness of touch" in engraving landscapes without the assistance of the point. In a "Transfiguration" after Raffaelle, Strutt remarks, that this Engraver has greatly failed, and that the character and expression of the heads, so admirable in the picture, are quite lost in the Engraving. Cort also engraved after Michael Angelo, Andrea del Sarto, M. Hemskirk, Franc. Floris, and others. His first works before he left Holland appear to have been after Hemskirk. Bible subjects, very indifferently executed.

Until the time of Cort, says M. Bartsch, (*Anleitung, &c.* vol. i. sec. 400.) Engraving had only been executed in closely compacted lines. Cort was the first who introduced a broad style of handling for the representation of drapery intelligibly, and according to its texture. (Art. 18.)

* *Agostino*, following the advice of his cousin *Ludovico*, studied painting some time at Parma, with his brother Annibale, and thence proceeded to Venice, where he perfected himself as an Engraver by the instructions of Cornelius Cort. He adopted the bold and free method of his preceptor, but in drawing was beautifully superior. His heads, observes Strutt, are admirable, and the marking of his extremities the most accurate and masterly; but his draperies are often stiff and crossed with a square second stroke which gives them an unpleasing effect. But perhaps his greatest defect is the prevalent fault of that Age, namely, the little attention paid to the chiaroscuro.

Another Italian scholar of Cort was *Francesco Villamena*, born at Assisi about A. D. 1560, who died at Rome A. D. 1626. He seems, says M. Bartsch, to have been too sparing of his graver; for his prints give the idea of sketches rather than of complete pictures. His lights being diffused too equally over a whole subject produce a slight and unfinished appearance: so that he may be said to be clear rather than powerful.

Batista and *Giacomo da Parma* might here be mentioned, (the former born at Parma about 1530,) an imitator of Cornelius Cort; the latter somewhat resembling Caraglio. (See last note to Art. 36.)

Martino Rota, born at Sebenico in Dalmatia about A. D. 1540, seems to have taken Cort for his model, and has copied the "Christ tempted in the Wilderness," from an Engraving by that master. He resided chiefly at Rome and Venice. His figures are correct in their design, but their extremities are not always duly marked. *Beaucoup de ses estampes*, says M. Bartsch, *ne font pas l'effet désiré à l'égard du clair obscur, parceque suivant le goût de la gravure de son temps, il n'a pas assez soigné les demi-teintes, et les dégradations dans les tons.* His print of the "Last Judgment" after M. Angelo is his chef-d'œuvre, and would, if he had engraved nothing else, suffice to rank him among the ablest Engravers of his time. But his portraits, among which may be particularized those of the Emperors Ferdinand I. and Rodolph II., leave far behind all that had been done before in this way by Beham, Pencz, Aldegrever, and the other old masters.

We doubt whether to this list of Italian names in simple Chalcography we need subjoin that of an inferior artist, *Giov. Bat. Bonncini*, a native of Milan about A. D. 1520, who seems to have toiled in the School of Cornelius Bloamaert; or the names of *Lucas* and *Cristofolo Bertelli* and their kindred at Modena, a tribe of dry and laboured and unsuccessful imitators of Cort. Two descendants of a family at Strasburg, the *Greuters*, father and son, had some reputation at Rome, where the latter was born about A. D. 1600. But we conclude with a name, mentioned by M. Bardon with some praise, namely, *Giovanni Marco Pitteri*, born at Venice in 1703, a pupil of Giov. Antonio Faldoni, whose style he did not adopt but contrived a method of his own quite distinct from the whim of Mellan. (See Note (G.) at the end of ENGRAVING.) His style is somewhat mannered, but, being a learned draughtsman, he has

Engraving — *Old German School of Chalcography* with the burin only.

(38.) The GERMAN SCHOOL of early Chalcography has handed down to us impressions so superior to the Italian, that many writers on the subject, whose criticism (and such is the criticism of Strutt) being unincumbered by national prepossessions seems impartial, have ascribed to Germany a simultaneous if not prior discovery of the Art. The year 1460 is mentioned by Vasari as about the date of Finiguerra's invention. (Art. 35.) The German School commences, however, with an anonymous Engraver, who dates so early as A. D. 1466.* The wonderful ease of execution to be remarked in these prints from the burin of the *Master of* 1466, as he is generally styled, leads to an inference that a number of anterior prints must have proceeded from the same hand in order to the acquirement of so much experience and facility.†

The Master of 1466 Martin Schöngauer.

It is considered that the style of this Master of 1466 had several followers. Of these we shall speak anon after mentioning another original artist who has been regarded also as the introducer of a peculiar and separate style; namely, *Martin Schön*, or *Schöngauer*, born, as it is now well ascertained, at Colmar, A. D. 1453, where he died in 1499. His family, however, were from Augsburg. He was a painter of great celebrity in his time, and according to Sandrart was the intimate of Pietro Perugino, the master of Raffaelle. The story too, which Vasari narrates, that Michael Angelo, when a boy, copied in colours, as a chef-d'œuvre, one of Martin's prints, the "St. Anthony tormented by Devils," has been told in compliment to this Engraver. The style of Schöngauer, notwithstanding its Gothicisms, has been awarded due praise for great powers of expression.‡

Chalcography. — Their followers.

Among the followers of the Master of 1466 Strutt reckons *Israhel van Mechen*, or *Mecheln*. M. Bartsch, however, who gives a list of two hundred and thirty-three undoubted pieces by this artist, includes among them not less than forty copies from the plates of Martin Schöngauer. Of Israhel van Mechen, he observes, (*Peintre Graveur*, vol. vi. p. 196.) that "his works bear the Gothic stamp of his times without any redeeming beauties; that he stands therefore below Schöngauer and his other contemporaries, whose works show an originality and a fire which shine forth frequently through a crowd of awkward and disagreeable particulars; and that no artist has ever copied one of Israhel van Mechen's plates." Strutt, however, maintains that Israhel had several disciples; and amongst them instances an artist named Zwoll, or Zwott, whom M. Bartsch identifies with an anonymous Engraver called, after his monogram, the *Master of the Shuttle*. He enumerates eighteen pieces by this master, which, if they answer Strutt's severe description of them, prove Zwoll to have been at least a faithful disciple of Van Mechen.*

Israel Van Mechen.

The Master of the Shuttle.

The other class of early copper-plate Engravers, followers, according to Strutt, of Martin Schöngauer, are: first an artist whose mark B. S. in Gothic character he interprets Bartholomew Schön.† After him *Schaufflein* the elder;‡ *Franz van Bocholt*;§ *Bosche*, (or rather

Schaufflein, Van Bocholt, and others.

made it answer his purpose. Instead of working in the usual mode by lines crossing each other in various directions, he covered his plate with one course of thin lines in one direction only, either perpendicular or diagonal, which he afterwards strengthened by retouching them in such parts as were necessary for giving form and prominency, and light and shadow to each object represented. (*Anleitung*, &c. vol. i. p. 173.) His plates possess considerable merit. He engraved several for the collection of the Dresden Gallery, and others after various masters.

* Several of his prints bear this date, and several others the date 1467, with the addition of the two letters E and S in Gothic character, and sometimes the letter E only. Strutt gives in his *Dictionary* a remarkable fac simile of this artist. It bears the mark 1461, which Mr. Ottley (*Hist. of Engraving*, p. 604.) conceives to be an alteration of some later date.

† Our wonder at the skill of this early burinist diminishes, when we consider that the first Engravers were all or most of them skilful goldsmiths or enamellers, to whom great dexterity of burin was essential long before a single chalcographic print appeared, or was even dreamed of any where: so that from the moment such a discovery as Finiguerra's came to be known there were numbers of expert burinists in the great commercial cities ready to make immediate use of it; and the only circumstance wanted to give the German prints the sort of superiority which they very fairly claim was some mode (which doubtless they adopted) of superior mechanism to the Italian for obtaining copper-plate impressions. M. Bartsch (*Peintre Graveur*, vol. vi. p. 1.) ascribes to the Master of 1466 one hundred and thirteen pieces which he himself has seen, besides eighteen which he mentions afterwards on the authority of other writers.

‡ See Ottley's *Hist of Engraving*, p. 646. and Bartsch's *Peintre Graveur*, vol. vi. p. 111. Schöngauer's facility of execution, and the equality which pervades his handling, are ascribed to his long previous skill and practice as a goldsmith in engraving ornaments on plate. M. Bartsch enumerates one hundred and sixteen pieces of this artist, and adds an account of seventeen others erroneously ascribed to him. Mr. Ottley has given a very interesting fac simile (*Hist. of Engraving*, p. 646.) of a Madonna by Schöngauer; and Strutt, in a similar spirit of kindness to his reader, has presented us with an imitation of another Madonna by the Master of 1466. Strutt considers these two artists as founders (by means of their numerous imitators and pupils) of two distinct classes in the primitive German School; both which classes, however, died at length away, and became absorbed in the superior claims and attractions of Albert Durer. See ch. v. p. 21. of Strutt's *Essay on the Origin and Progress of Engraving* at the end of vol. i. of his *Dictionary*.

* There is an Israhel van Mechen the elder, who is regarded as the father of this artist. He was a painter and goldsmith, but it is doubted by some whether the Engravings imputed to him are from his hand. M. Bartsch's opinion is, that the father and son worked together on the same plates, which when worn were retouched by the younger Mechen. The author of the *Catalogue of an Amateur* observes, that there is no account of the death of the elder Mechen; but the death of the younger took place in 1503, as appears from a document in the British Museum copied from a monumental brass.

The Mechens, though decidedly inferior to many of their contemporaries, and possessing no common portion of Gothic stiffness, have, continues this writer, considerable merit in the execution of many of their pieces. The "Life of the Virgin" may be fairly quoted in support of this. A fac simile is given by Mr. Ottley at p. 660 of his *Hist. of Engraving*, from a specimen of Israhel van Mechen, which ought certainly to have softened the severity of M. Bartsch's criticism. It is a small print representing "Hares roasting the Huntsmen and boiling the Hounds." Among the disciples of Van Mechen, Strutt records *Michael Bogner*, and even *Lucas Jacobs*, called *Lucas Van Leyden*. (Art. 29.) Of Bogner (who flourished in 1487) he records only a small plate representing a coat of arms. He adds to the list several anonymous Engravers, and gives their monograms. (*Essay on the Origin and Progress of Engraving*, p. 21.)

† Strutt supposes him a brother of Martin Schön, or Schöngauer. But Martin, as M. Bartsch shows, (*Peintre Graveur*, vol. vi. p. 68.) had no brother of that name. He had four brothers, Gaspar, Paul, Louis, and George, but no Bartholomew.

‡ *Ce que Strutt avance de deux maîtres de ce nom, d'un ainé et d'un plus jeune, ne semble être qu'une simple conjecture.* (*Peintre Graveur*, vol. vii. p. 245.) Hans Schaufflein, from the similarity of his manner to that of Durer, is considered to have been his pupil.

§ Mr. Ottley regards the works of *Bocholt* as bearing strong resemblance to those of the Master of 1466; a fact which Strutt acknowledges, and must therefore wave in this instance his distinction of the two classes. Van Bocholt was a native probably of the town of that name in the Bishopric of Munster, where lived also his contemporary Van Mechen above mentioned, of whom, according to M. Bartsch, he was the instructor. Thirty-eight pieces by Bocholt are described in the *Peintre Graveur*, vol. vii. p. 77.

Engraving. *Alert van Hameel*,) for whom see the Dutch School; *Wenceslas von Olmutz*; *Pleydenwurff*; (Art 29.) *Wolgemuth*; (*Ibid.*) *Matthew Zagel*, (whom some call Martin Zatzinger, others Martin Zinck:) *Mair*; and lastly, an artist whose monogram (the Gothic letters V. G. or V placed within G) Strutt reads *Van Gamperlin*.*

The Master of the Anchor. The *Master of the Anchor*, also so named from his monogram, was of this period. Five pieces from his burin are diligently recorded by M. Bartsch. (*Peintre Graveur*, vol. vi. p. 394.) We might here mention as

Culmbach. a follower and copyist of Schöngauer *Johan von Culmbach*, a pupil, according to Doppelmayer, of Jacob Welch.† Three of the fourteen prints attributed to Culmbach by M. Bartsch are copied from plates by Schöngauer. But Culmbach is thought to have been an associate in the Art, if not a pupil of the renowned artist with whose name we commence the next para-

Glockenton. graph. *Albert Glockenton* also is recorded (*Ibid.* p. 344.) as a copyist of Schöngauer and Engraver of twenty-seven pieces.‡

(39.) *Albert Durer*, (see PAINTING, p. 485.) whose celebrity we have already noticed in another branch of Engraving, (Art. 29. p. 790.) was no less conspicuous and influential in that now under consideration. His works seem to have been universally held as models among his contemporaries, and to have superseded all former graphic attempts among his Countrymen. "Great as was the fame of Durer as a painter," says the author of the *Peintre Graveur*, "his productions as an Engraver do him no less honour. His plates show a freedom, delicacy, and facility of burin to which none of his predecessors can make pretension." Indeed, as to neatness and clearness of execution, together with all other mechanical qualifications for the Art, he has never been exceeded; but it has been the regret of all his tasteful admirers, that Durer, with such fertility of invention, such judicious arrangement, such variety and power of expression, (see PAINTING, Art. 279.) should have been deficient in that graceful flow of outline which distinguished his Italian contemporaries, and with which his visit to Italy unfortunately failed to inspire him.* Durer had, as may be concluded, numerous pupils and followers.†

Chalcography. Durer.

His pupils and followers.

---

* *Wenceslas von Olmutz*, the above-mentioned copyist of Schöngauer, was a goldsmith, and, as his name imports, a citizen of Olmutz in Moravia. He also copied Albert Durer, and sometimes engraved after the designs of Mair. He copied also Israhel van Mechen, or perhaps was copied by him. (*Peintre Graveur*, vol. vi. p. 337.) But from not being a painter, Wenceslas is conceived by M. Bartsch never to have engraved after his own designs. The great inequality, indeed, both as to composition and design, manifested throughout his Engravings, argues a great number of different designers. His monogram, a W, has sometimes been asserted to stand for Wolgemuth; but M. Bartsch insists upon the improbability that Wolgemuth, from whom Durer learned to engrave, (Art. 29.) would make inferior copies such as these marked W, from the prints of his pupil. Mr. Ottley, however, alluding to a print marked W attributed by M. Bartsch to Wenceslas of Olmutz, and entitled the "Effects of Jealousy," considers it an original production of Wolgemuth. (*Hist. of Engraving*, p. 681.) *Mair*, the fellow-countryman of Wenceslas and a painter, was a native of Landshut in Moravia, and has left twelve Engravings, described in vol. vi. of the *Peintre Graveur*. *Pleydenwurff*, if he engraved at all, (Art. 29.) was not a Chalcographer; and with regard to such prints as pass under the name of *Martin Zanck*, or *Zagel*, the artist is in fact unknown; but from one of his works, "An Entertainment at Munich," he is imagined to have inhabited that city.

† The name *Welch* is not recognised by M. Bartsch, but the monogram assigned by Strutt to this artist will be found in vol. vi. p. 56. of the *Peintre Graveur*, accompanied by a list of thirty-one copper-plates with this introductory observation: *le maitre est remarquable parce qu'il est auteur original. La perte de son nom est à regretter.*

‡ Various other burinists of this ancient period might be added. *Lucas Kranach*, (see Note (W.) at the end of ENGRAVING,) whose copper-plates are extremely few and scarce, born in 1470 at Kronach, in the territory of Bamberg in Franconia, who became painter to the Court of Saxony, and died at Weimar A. D. 1553; *H. B. Grun*, (*Ibid.*) who flourished about 1516, and whose paintings, according to Huber, are numerous in Switzerland and at Strasburg, and adorn the Cathedral of Friburg: *Urse Graf*, (*Ibid.*) die-engraver and goldsmith of Basle: the *Master of the Crab*, (*Peintre Graveur*, vol. vii. p. 527.) Engraver of twenty-four pieces, one of them etched: *Ludwig Krug*, (*Ibid.* p. 555.) or Kruglein, a goldsmith of Nuremburg, supposed to have died there about A. D. 1535. The device *krug*, (a jug,) of which Kruglein is a diminutive, placed between his initials, forms his monogram. Twelve copper-plates are ascribed to him. Of three *Hopfers*, David, or *Daniel*, the first mentioned, (*Ibid.* vol. viii. p. 473.) has executed one hundred and thirty-three copper plates, two of them etched in a peculiar manner similar to aquatinta; *Jerome*, the next, (*Ibid.* p. 506.) seventy-seven plates, more than half of them copies from prints by Durer, Lucas Kranach, Marc Antonio, Andr. Mantegna, Agostino Venetiano, &c.; and thirdly, *Lambert*, (*Ibid.* p. 526.) thirty-four plates, chiefly copies from Durer and Ant. de Brescia. Nothing is known of the birth-place, or residence, or exact period of the Hopfers, or how they were connected. Their monogram, a hop. (*hopfer*,) has been mistaken for a candlestick, and they have been called the *Masters of the Candlestick*. Twenty-three plates, thirteen of them etched, have been ascribed to *Justus Amman*. (*Ibid.* vol. ix. p. 351.) Of *Virgilius Solis*, no less than five hundred and fifty-eight copper-plates are recorded, (*Ibid.* p. 242, see also Art. 29.) and among them two pieces etched, representing "The Deluge:" of *Hans Sebald Lautensack* of Nuremburg (*ibid.* p. 208, also see Art. 29.) fifty-nine copper-plates; and of *Melchior Lorich* (see Note (W.) at the end of ENGRAVING) sixteen.

* Of his Engravings on metal the author of the *Peintre Graveur* particularizes one hundred and eight pieces. Three of them, he remarks, are engraved on plates of tin, two of which have been etched; and four others have been etched on plates of iron. Mr. Ottley, however, is of opinion, that these last-named prints, from one of which he gives a fac simile, are not etchings upon iron, but were executed upon plates of a somewhat softer metal than copper and with the dry point.

The *Catalogue of an Amateur* includes eleven choice copper-plates by Durer. Among these is the "St. Eustachius," a plate gilt by the Emperor Rodolph in compliment to the artist. "Adam and Eve," A. D. 1504. "Melancholy," A. D. 1514. "Fortune," called, to distinguish it from a smaller print, the "Great Fortune." These three are also selected by M. Bartsch. (*Anleitung, &c.* vol. i. p. 164.) Respecting another remarkable print in the *Catalogue*, entitled the "Prodigal Son," the amateur records a ludicrous mistake of a contemporary Encyclopædist. "In describing the works of Albert Durer under the German School of Engraving in the *Encyclopædia* of Rees, among other prints is noticed, the '*Infant Prodigy*,' *a kneeling figure in folio*: some pretend that this is a *portrait of Durer himself*. This *Infant Prodigy* is doubtless no other than the 'Prodigal Son' by our artist, so translated by the compiler from the title *l'enfant prodigue* in the Work of Bartsch, or of some French writer."

† The undermentioned artists, followers or pupils of Durer, have been called, from their works being generally of small size, the *Little Masters*. Several of them practised also Engraving on wood. (Art. 29.) *Albert Altdorfer*. (See note (W.) at the end of ENGRAVING.) *Henry Aldegrever*, (Note (U.) *Ibid.*) *nommé par erreur Aldegraof*, (PAINTING, p. 485.) one of the first who improved the method of representing flesh by dotted lines, (Art. 16.) since brought to beautiful perfection by the French School. *Hans Brosamer*, (see note (W.) at the end of ENGRAVING,) together with these four who completed their studies under Marc Antonio: (Art 36.) the two *Behams*, uncle and nephew, of whom the former, *Bartholomew*, a painter, has sixty-four copper-plates ascribed to him, (*Peintre Graveur*, vol. viii. p. 81.) and the latter, *Hans Sebald*, (Art. 29.) no less than two hundred and fifty-nine. (vol. viii. p. 112.) thirteen of them etched, and one of them *à l'eau forte sur fer*; *George Pencz* sometimes called *Gregory Penn*, who was born at Nuremburg about A. D. 1500, and died in 1550 at Breslau, to whom one hundred and twenty-six copper-plates are attributed, to the exclusion of a plate as spurious, (*Ibid.* p. 361.) containing portraits of himself and his wife; also, fourthly, *James Binck*, born about 1490 or 1504, whose

Engraving.

Gradual improvement in chiaroscuro.

Modern School of Germany.

Of the later German burinists we must here take some brief notice. They had now drawn from Italy much improvement in respect of graceful contour. They were next to benefit by the example of their neighbours both in France and in Flanders, amongst whom pictorial effect became at length a peculiar study. The advancement, however, towards a proper introduction of light and shade into engraved works was far from immediate; and chiaroscuro, as to Line Engraving must, perhaps, date its origin from the time when the etching needle was received as a judicious auxiliary to the graver.*

The Kilians.

But our present business is with simple Chalcography. *Lucas Kilian*, born A. D. 1547, at Augsburg, died there in 1637, after passing many years in Italy, and especially at Venice. His first instructor was his stepfather, Dominic Custos, a printseller and indifferent artist, native of Antwerp, who had established himself at Augsburg. Kilian seems to have formed his style from the works of Egidius Sadeler, (Art. 40.) Henry Goltzius, (*Ib.*) and Muller, pupil of Goltzius. He may be called the patriarch of a family of artists; for an account of whom we refer our readers to more copious biographical sources. *Wolf-gang Kilian*, his brother, we may pronounce neater in execution, but both are thought deficient in accuracy.† *Jacob Sandrart*, who flourished at Nuremburg in 1660, nephew of Joachim the celebrated Biographer, engraved in a neat clear style a number of portraits, and among them that of his uncle.

George Frederic Schmidt, born in 1712 at Berlin, (where he died in 1775,) after a course of academical application until his twenty-fourth year in that Capital, had the further advantage of studying under the celebrated burinist of that day, Nic. de Larmessin, at Paris, where he so entirely profited by the instructions of that able master as to be admitted, in 1742, (although a Protestant, and living in very bigoted times,) into the French Academy of Arts, by an express order from the King of France. He again visited Berlin, and was there honoured, in 1757, by a request from the Empress (Elizabeth) of Russia, to visit Petersburg and engrave her portrait. This commission he executed with admirable skill, in addition to the number of excellent portraits already from his burin. His last works were beautiful etchings *à la Rembrandt.** Contemporary with Schmidt was *John George Wille*, who, from residing chiefly at Paris, has been frequently classed among the French Engravers. Born at Konigsburg A. D. 1715, he originally followed the business of an armourer, and came to Paris in 1736, where, at his arrival, he was so poor as to be glad to accept some miserable situation at a watchmaker's. This, however, he soon quitted for his ordinary occupation at a gunsmith's. But his passion for Engraving was not to be restrained by poverty: he at length devoted himself wholly to the Art, and was first employed by Odieuvre, the printseller, to engrave portraits. Schmidt, with whom he became formerly acquainted at Strasburg on his way to Paris, and Hyacinthe Rigaud, the great portrait-painter, who assisted him with his purse and advice, were his fast friends. His powers of graphic representation were adapted with peculiar skill to the appropriate texture of objects, and his burin has been most happily illustrative of the highly finished paintings of Douw, Mieris, Metzu, Netcher, and Terburg. These talents, together with those of his friend Schmidt, and of John Martin Preisler (Schmidt's pupil) of Nuremburg, rendered Paris at one time the finest graphic School in Europe. He died at Paris in 1808. His instructions and example produced several excellent followers.†

Chalcography.

J. G. Wille

birthplace is by some fixed at Nuremburg, and by others (from his inscribing himself Coloniensis) at Cologne. (See note (U.) at the end of ENGRAVING.) Residence at Rome has sometimes obtained for Binck, together with the other German pupils of Marc Antonio, a place in the Italian School. M. Bartsch, however, conceives that Binck might never have been at Rome nor under Marc Antonio. (*Peintre Graveur*, vol. viii. p. 256.) He painted for some time at Konigsburg, was in the service of Albert of Prussia, A. D. 1551, and died at Konigsburg about A. D. 1560. The great inequality among the various works bearing the monogram of Binck, makes it difficult to ascribe them to one and the same hand. Among the ninety-seven copper-plates ascribed to him in the *Peintre Graveur* are copies from Albert Durer, from the Behams, and from M. Antonio.

Some authors extend the number of these *Little Masters* by adding many artists who were not Germans nor pupils of Durer.

* "While the etching point," says Strutt, "remained in the hands of the painters only, no great improvement could be supposed to take place. Their attention was necessarily turned to objects of greater importance, and etching was considered in general by them as an amusement. By Engravers, too, the point was too much neglected. They seem to have regarded it as a thing of small consequence till such time as Girard Audran, by uniting it with the graver, produced those performances which have done his Country honour." Strutt's *Essay*, p. 10.

† M. Bartsch remarks of the portraits engraved by *Lucas*, that they are characterised by beautiful simplicity, and that his works, chiefly portraits, show boldness and facility. The plates of Lucas amount to two hundred and thirty.

* Of *Schmidt*, it is observed by Watelet, that he not only guided his burin with singular ease and grace, but handled his etching needle also with all the lightness and playfulness of a Castiglione or a Rembrandt. No artist of modern date has approached nearer to Rembrandt, and this approximation he accomplished, says M. Bartsch, not so much by means of Rembrandt's thickly repeated strokes of the dry needle, in order to conceal each separate stroke of his point, as by the apparent disorder under which, uniting every style of handling, he hides from obvious view the source of so much spirited and tasteful effect. A force of chiaroscuro is thus obtained superior to that of any other artist of the same class. His works consist of two hundred and seventy-three plates.

† Among the distinguished pupils of Wille was *Jacob Schmutzer*, born at Vienna A. D. 1733. He belonged to a family of Engravers. His two uncles, *Joseph* and *John Adam Schmutzer*, together with his father *Andrew*, were all more or less handlers of the graving tool, the use of which descended to them likewise from their parent, the son of a General in the Imperial service. The General, ruined by the vicissitudes of war, left that son no other inheritance but the faculty of contriving to live. The heir to this faculty, however, found means of subsistence, by having learned to engrave in iron or steel the ornamental parts of locks, swords, and fire-arms. To the same occupation all his above-named progeny were reared, and to this has been attributed their great facility as burinists. Jacob Schmutzer, at his return to Vienna, (he died there in 1806,) was appointed a Director of the Academy established by the Empress Maria Theresa in that Capital. Here he superintended the education of numerous students, and became as great in his native metropolis as Wille his master had been at Paris. Jacob Schmutzer's free yet judicious handling and firm outline well suited him for an Engraver of Rubens, whose works he chiefly selected. The broad effects of chiaroscuro and bold tournure of the figures characterising that master were transferred with congenial spirit from the canvass of Rubens to the copper-plate of Schmutzer. Had he chosen Raffaelle, whose noble simplicity, observes M. Bartsch, his mind was not formed to appreciate, he would have failed. Another eminent pupil of Wille is *Johan Gotthardt Muller*, born A. D. 1747 at Bernhausen, in the Duchy of Wirtemburg. The Duke became his patron, and sent him at the age of twenty-three to complete his studies at Paris, where, in 1776, he was admitted a member of the French Academy. He returned soon after to Stutgard, and became Professor of Design in the Ducal Academy there. He died in 1814. His works, which in History and in Portrait are equally admirable, evince excellent drawing and distribution of chiaroscuro, together with the neatest execution and most judicious handling. A full length of Louis XVI. of France, after Duplessis, is among the most esteemed and perfect of his portraits. To this list of modern burinists in Germany we may subjoin from the *Anleitung* of M. Bartsch the name of another pupil of Wille *Sebastian Ignaz Klauber*, born at Augsburg in 1754. He had resided and studied

Engraving. *Dutch and Flemish Schools with the burin only.*

(40.) The Dutch and Flemish masters in simple Chalcography next claim and deserve attention. Their perseverance and their success in this peculiar department of the Art place them among the best examples for the imitation of all future artists. But, probably, no period will ever again occur so prolific in able burinists as the latter half of the XVIth and first half of the XVIIth Century. Of these graphic generations of men, the Engravers of the Low Countries are unquestionably among the ablest and most numerous. Leyden, Amsterdam, Brussels, Utrecht, and Antwerp, but especially the last-mentioned city, poured forth reams of copper-plate, and from the hands of beautiful contributors. From Leyden came *Lucas Jacobs*, the father of Flemish Art, (Art 29. and Painting, p. 480.) and *longo temporis intervallo, John Saenredam.** From Amsterdam and Haerlem, the School of Henry Goltzius, came the *Mullers*, the *Wierinxes*, and the *Visschers*.† From Utrecht the *Count de Goudt*, the

Lucas van Leyden.

Chalcography.

at Rome a considerable time before his visit to Paris, where he became a member of the Academy, and received the title of Engraver to the King. He was living in 1806 at Petersburg. His print after Polemberg, *Le petit écolier de Haerlem*, and another of the "Saviour," after Stella, would do honour to the burin of Wille himself.

* Lucas Jacobs, the contemporary of Durer and of Marc Antonio, is better known by the name of Lucas van Leyden, the city in which he was born, A. D. 1494. His life, like Raffaelle's, was short, and did not reach forty, but like that of Raffaelle (who was his junior by eleven years) comprised enough occupation for many lives. The *Peintre Graveur* records (vol. viii. p. 339.) one hundred and seventy-four pieces of this master, three of them etchings, and two others partly etched and partly completed with the graver. Other etchings by some *inconnu* in the style of Lucas are mentioned. All his works are from designs of his own, many of which are scriptural subjects, commencing with a series of six from the creation to the murder of Abel. Five others represent the History of Joseph, and a set of fourteen the History and Passion of our Lord. A repetition of the latter subject in a series of nine prints was designed for painting on glass. According to Vasari, Albert Durer was so much struck by one of Lucas's works, that as an effort in competition with it he designed and engraved the print called his "Horse of Death." Durer came to visit his competitor at Leyden, where, in token of their mutual esteem and amity, they painted each other on the same canvass. The excessive application of Lucas so impaired his health, that for the last six years of life he scarcely left his bed, and his mind, which in his early days had been gay and cheerful, lost all its natural tone, and was haunted by suspicions of poison. So that this declining period was a melancholy contrast to former gaiety, when in a handsome vessel of his own he made a voyage to the Netherlands, and feasted all the Flemish painters, with his friend John de Mabuse, attired in cloth of guld, at their head, on four magnificent occasions, at Middleburg, at Ghent, at Mecklin, and at Antwerp, expending sixty florins for each repast.

From the burin of *John Saenredam*, born at Leyden, about A. D. 1570, a catalogue is given in the *Peintre Graveur* (vol. iii. p. 219.) of one hundred and twenty-three pieces, of which only twelve are after his own designs, and the rest after P. Veronese, M. A. Caravaggio, Abr. Bloemaert, Lucas van Leyden, &c. He was a pupil of Henry Goltzius hereafter mentioned.

† *Henry Goltz* or *Goltzius* was born A. D. 1558, at Mulbrecht in the Duchy of Julien. On his return from Italy, where he studied and engraved under some of the best early masters, he settled in the neighbourhood of Amsterdam at Haerlem. At the age of forty-two he commenced Painting. (Painting, p. 481.) His family had already become illustrious in the person of *Hubert*, the learned antiquary, entitled Painter and Historian to Philip II. of Spain, and no inconsiderable Engraver. But Henry, though not equally profound, was an artist of more genius than Hubert. His ambition was to attain the "sublime" by the study of Michael Angelo and Raffaelle. He was, however, betrayed, like other imitators of Angelo, into the "*bombastia*." But he was a perfect master of anatomy: he drew the extremities of the figure with irreproachable precision, and his burin, notwithstanding the affectation we allude to, charms every eye by the beauty and freedom of its execution. He had sufficient command of this instrument to be able, by the labour of a few months in 1593 and 1594, to complete six pieces in such perfect imitation of the old masters, Durer, Lucas van Leyden, &c. (hence called his *master-pieces*,) that he passed his counterfeits for some time as originals, and enjoyed ever afterwards a signal triumph over such virtuosi of his time as were loud in proclaiming the universal degeneracy of the Art, and accused him and others of introducing a new style of Engraving, only through inability to match the old. M. Bartsch enumerates two hundred and twenty-five copper-plates engraved by Henry Goltzius from his own designs, and seventy-seven from designs by others. His pupils *Saenredam* (for whom see last Note) and *Matham* sometimes resembled him so closely that it is difficult to assign each his due. By *James Matham*, who was the son-in-law as well as pupil of Goltzius, we have on record three hundred and fifteen plates. Of these about two hundred and forty are spoken of as being certainly his: the remainder (among which are four *à l'eau forte*) have been attributed to him, or had been engraved under his directions. (*Peintre Graveur*, vol. iii. p. 193.) Another scholar of Henry Goltzius was *John Muller*, born at Amsterdam about A. D. 1570, to whom are assigned eighty-seven pieces. (*Ibid.* p. 265.) He had the art of economizing the strokes of his graver so as seldom to exceed two courses of lines. *On est étonné*, says M. L'Evêque, *de voir avec quelle adresse il oblige une même taille à lui servir de première ou de seconde, pour rendre une figure entière. Il fait très-rarement usage d'une troisième taille, et ce que n'est jamais que dans une partie de peu d'étendue et qu'il a voulu sacrifier. Avec cette savante économie on ne lui peut reprocher ni monotonie dans l'effet général, ni uniformité dans la manœuvre.* (*Encyclopédie Méthodique, Beaux Arts*, p. 370.) *Herman Muller*, a supposed relation of this artist, was likewise his fellow-student, partaking more of the laboured style of that period of Flemish Art, but with a tolerably correct outline. He engraved several plates at Antwerp in conjunction with Cornelius Cort (Art. 37.) for Jerome Cock, and also in conjunction with the Galles, the Sadelers, and others, several subjects from the Bible after John Stradan, Martin de Vos, and other masters. Among the disciples of Goltzius we must not omit *James de Gheyn*, (called the elder, to distinguish him from an Engraver of the same name,) born at Antwerp in 1565. His prints, which show great command of the graver, are in high esteem.

The Mullers, Wierinxes, and Visschers. Goudt.

Amsterdam gave birth to three brothers of the family of *Wierix* or *Wierinx*, all of them designers and Engravers. *John*, the eldest, born in 1550, must have formed his style upon that of Albert Durer, whose works he studied and followed with the servile minuteness of the most implicit copyist. He engraved also from his own designs, which betray poverty of invention. But his prints are much sought by the curious: his execution is neat and finished; and his drawing generally correct. *Jerome*, the next brother, born A. D. 1552, was probably the pupil of John, whose prints would not be known from Jerome's but for the Engraver's mark. The same neatness, the same quaintness, the same undeviating formality, will be seen in both. The youngest brother *Anthony*, born about two years after Jerome, executed some small plates in the style of his brothers; but his larger productions show greater freedom and more facility. The subjects for Engraving undertaken by the three Wierinxes, who frequently worked in conjunction, are in the departments both of Portrait and of History.

Cornelius Visscher was born at Haerlem about 1610. His instructor in Engraving was *Peter Soutman* of the same birth-place, born about the year 1590, a Dutch painter, and pupil of Rubens. Visscher, however, rejected the style of his master Soutman, and adopted one for himself, in which he became unrivalled. Besides tasteful and correct drawing, his works, especially those from his own designs, are replete with originality and inventive genius. In his plates, indeed, after designs of the Italian and Flemish masters, and in particular after Rubens, he is confessedly inferior to the brilliant triumvirate, consisting of Vorsterman, Bolswert, and Pontius. No artist, we may here add, has ever surpassed Visscher in the talent of harmonizing the operations of the graver with that of the point to which he occasionally resorted. His younger brother *Jan* or John, who flourished about A. D. 1650, adopted the point more frequently. He also was an admirable artist, though without the extensive talent of Cornelius, and sometimes without accurate delineation of the figure. *Cornelius van Delen* of Antwerp, an Engraver in History and Portrait, is mentioned as a disciple of Cornelius Visscher. But a much more eminent Dutch artist of the Schools of the Visschers was *Abraham Blooteling*, born at Amsterdam in 1634. He lived for two or three years in England. His chief works, however, are not from the graver only, but are either etchings or in mezzotinto. (Art. 61.)

Besides Cornelius Visscher, there was another scholar of Soutman also among the ablest burinists of that day, namely, *Jonas*

Bloemaert, and Family of De Passe. The Galles, the Vostermans, the Bolswerts, Paul Pontius and others.

family of *De Passe*, and *Cornelius Bloemaert*.* From Brussels the *Sadelers*,† and from Antwerp their scholars. From Antwerp also came *De Gheyn*, a fellow-student in the School of Goltzius, with Saenredam, already named; and from Antwerp the *Galles*, the *Vostermans*, the *Bolswerts*, together with *Paul Pontius*, and a host of pupils,‡

Snyderhoef, born at Leyden A. D. 1600. He pursued the style which his master had adopted, but with a delicacy and finish peculiarly his own. Together with great neatness he combined great force of colour, and to repeat the eulogium of Strutt, he harmonized the light with the shadows so as to produce a fine effect. Strutt complains, however, that his drawing of the figure is sometimes faulty, and M. Bartsch, that his handling is not always clean, but the latter critic distinguishes him for extraordinary warmth, truth, and power of expression.

* The family of *De Passe* has given celebrity to Utrecht their native city. *Crispin de Passe* the elder, born there about A. D. 1560, is said to have learned Engraving from *Dirk* (Theodore) *van Cuernhert* of Amsterdam, the instructor of Henry Goltzius, but more celebrated as a controversialist than as an Engraver. Like Cuernhert, De Passe was a man of letters, but was far beyond him both as an artist and as a patron of Art. He published at his own expense Holland's *Horologia*, and in his latter days a Drawing-book of his own for the advancement of students, printed in Italian, French, and Dutch, at Amsterdam, in 1643, after his return from England. This Work, entitled *Della Luce del Depingere e Designare*, is prefaced with some account of his life and studies, and mentions Rubens, Blomaert, and other distinguished contemporaries, as his friends and encouragers. It contains the experience of more than seventy years passed from earliest youth in assiduous cultivation of the Art; treats of Geometry and Perspective; of the proportions of the human figure; of studying by lamplight; of adjusting the lay figure for draperies; and of comparative anatomy for drawing quadrupeds, birds, and fishes. The prints of this artist, which are very numerous, possess clear, neat, and original execution, and his drawing is correct, but sometimes formal, and sometimes tending to the bulky forms of Rubens. His portraits have great merit, and, together with those by his three sons, *Crispin*, *William*, and *Simon*, as well as by his daughter *Magdalen*, are interesting to us not only as works of Art, but in their connection with an important era in European, and particularly English History. William, born at Utrecht about 1590, and Simon, the youngest son, were the most remarkable of the four. Magdalen de Passe engraved after Elsheimer, in imitation of (but in a style inferior to) Count Goudt.

This distinguished gentleman and artist of Utrecht, and of a noble family of Holland, *Henry Count de Goudt*, was born in 1685. He went early to Rome to study in the Academy, where he became the associate and friend of the celebrated but unfortunate Painter *Elsheimer*, by whose instructions he profited, and whose pictures he liberally purchased. He thus enjoyed the twofold gratification of relieving his preceptor from indigence, and of obtaining those originals after which he employed his burin, and has so happily imitated the delicacy and peculiar finish of his industrious and ingenious master. The style of Goudt was quite his own, but was perhaps the best possible for expressing the remarkable chiaroscuro of Elsheimer. It was not by the usual mode of deepening and strengthening the strokes, but by delicately crossing and recrossing them in the shadows that he accomplished his purpose.

Another native of Utrecht was *Cornelius Bloemaert*, born there in 1631, who died at Rome in 1680. He belonged to a family of artists. *Abraham*, his father, a painter of eminence as a colourist, and whose prints in chiaroscuro, by the joint use of wood blocks and copper-plates, (last Note to Art. 12.) we shall have occasion to mention, had four sons all of them Engravers. But *Cornelius*, the youngest, was the only distinguished burinist among them. The softness of his transitions from light to shadow, together with the truth and beauty of his aerial perspective, by which he suited his tints in delicate gradation and infinite variety to the different distances of any required representation, have never been exceeded. Before his time harmony was often disregarded; lights were left indiscriminately clear; and in general a patched and spotty effect was the natural consequence. But Bloemaert reformed these errors, and may be regarded as the founder of that style which was afterwards to distinguish the great masters of the French School, Audran, Bandet, Picart, and Poilly. M. Bartsch complains of Bloemaert that a general weakness of effect exists in his Engravings, from the absence of powerful shadows, a deficiency which is most observable in his draperies, and which arises from a sameness in the direction of his hatchings throughout the work. He says of him, however, that although his burin is generally somewhat cold, yet in working after any able colourist, he was quite competent to produce sufficient warmth of effect, such as we see exemplified in the most celebrated of his plates, "The Raising of Tabitha," after Guercino. Among the pupils, followers, and associates in Art of Cornelius Bloemaert were *Theodore Matham*, son of James mentioned in our last Note, *Michael Natalis*, *Reynier de Persyn*, and others. These engraved together at Rome the Statues of the Giustiniani Gallery. A Flemish pupil of Bloemaert, and also of Spierre, (for whom see the French School; Art. 41.) was *Peter Clouet*, born at Antwerp in 1606. On his return to settle in his native city he engraved many subjects in the style of (but unequal to) Pontius. His example was followed by *Albert* his nephew.

† The progenitor of this family was an ornamental workman at Brussels, who engraved steel and iron to be afterwards inlaid with gold or silver. His sons, *John* and *Raphael Sadeler*, born at Brussels in 1550 and 1555, were brought up to their father's business, and their mechanical education may account for the numerous plates which their facility of handling enabled them to execute: although John, the elder son, was nearly twenty years of age before he commenced Engraving on copper. The success of John induced Raphael to become his pupil, and the two brothers travelled through Germany together for improvement, and to Venice, where they settled, and where they died. Their drawing of the human figure is generally correct, and the extremities are carefully marked. The expression of John's heads has been much admired.

It is *Egidius Sadeler*, however, a nephew of the foregoing, born at Antwerp in 1570, that ranks among the best of Flemish burinists. After being well grounded in the principles of Design, he acquired, with the assistance of his above-named relatives, such command of the graver as even to surpass his instructors. His execution is remarked to be as dexterous and happy in works requiring the utmost neatness and delicacy as in others that demand strength and boldness. Portrait, Landscape, and History exercised alternately the powers of this gifted and inexhaustible artist. Some plates are from his own designs, which are highly valued, especially his portraits. The Emperor Rodolph II. invited him to Prague, where he received the substantial honour of a pension, and enjoyed the favour of the two succeeding monarchs, Matthias and Ferdinand II., and where he died in 1629. *Peter Furnius*, resident at Antwerp, a contemporary of the Galles and Sadelers, and who furnished them with several designs, may here be noticed.

‡ *Philip Galle*, native of Haerlem, born A. D. 1537, settled at Antwerp, and with his sons *Theodore* and *Cornelius* became eminent in Engraving; but particularly Cornelius. The latter greatly surpassed his father and brother, and had acquired at Rome, where he resided several years, admirable correctness of design, united to freedom and facility of execution. At Antwerp he finally settled and carried on the business of a printseller. His son, called *Cornelius the younger*, born A. D. 1600, does not appear to have had the advantage of studying in Italy, which may account for an inferior degree of correctness in his drawing to that of his father and uncle. His portraits, chiefly from Vandyke, are among the best of his works.

Lucas Vorstermann, born at Antwerp A. D. 1580, studied painting in the great School of Rubens, by whose advice he exchanged the palette for the graving tool. Among the several able artists who profited by the assistance of that judicious preceptor, no Engraver was more successful than Vorstermann. A print in his hands became a picture, for he was more attentive to general effect and intelligent discrimination of objects than to neatness and regularity of execution. At the same time he guided his burin with the happiest facility; his outlines are perfect, his heads full of expression; and his graphic transcripts of Rubens are faithful, spirited, and worthy of his master. He was called the *elder* Vorstermann, to distinguish him from another *Lucas*, his son, who, with all the benefit of paternal instruction, never rose above mediocrity.

Two brothers, named *Bolswert* or *Bolsuerd*, from the place of their nativity in Friesland, were contemporaries of the elder Lucas, and removed to settle at Antwerp as printsellers and Engravers. *Adam Boetius a Bolswert*, born about 1589, is remarkable for the finish and fullness of colour with which he engraved from Rubens. *Scheltius a Bolswert*, however, the other brother, (about six years younger,) was decidedly superior. He was the intimate friend of Rubens, who not unfrequently retouched his proofs, in the progress of an Engraving, with chalk or with pencil.

Paul Pontius, or *du Pont*, another artist who engraved under the superintending eye of Rubens, was born at Antwerp about A. D

Engraving.

C. Vermeulen.

Cornelius Vermeulen, is placed by M. Bartsch, (*Anleitung, &c.* vol. i. p. 187.) perhaps from the circumstance of his having worked for French booksellers, or of having lived some time in France, among the French Engravers; but he resided principally in his native city Antwerp, where he died A. D. 1702, at the age of fifty-eight. His portraits are much admired, and some of them engraved for Isaac Larrey's *History of England*, 4to. 1697, have given its chief value to that book; but in historical compositions, from his defective drawing of the figure, he was not successful. M. Bartsch concludes his list of modern burinists of Holland (*Ibid.* vol. i. p. 182.) with the name of *Jacob*, son of Arnold *Houbraken*, a Painter and Biographer of Dutch artists. Jacob was born at Dort A. D. 1698, and died there in 1780. His instructor in the Chalcographic Art is not known; but he probably was most indebted to his own genius. He evidently studied Edelinck and Duvet and the French School. (Art. 41.) He is considered not inferior in delicacy to Duvet, and sometimes exceeds him in boldness of handling and strength of colour. The glossiness and lightness with which in his portraits he represents the human hair are inimitable; and by introducing rough lines among his draperies and accessories in bold contrast with the delicate tints of his carnations, "he produces," says M. Bartsch, "a most artist like effect:" in proof of which we are referred to the "Four Burgomasters of Amsterdam," after J. Waudelaar.*

Jacob Houbraken.

The reader will perceive that our limits imperatively oblige us to pass over numerous minor artists, since we have been compelled to refer him for a short account of even the highest class to our Notes, in which the smallness of the type enables us to comprise a few remarks on each within a smaller portion of our pages.

French School in simple Chalcography.

(41.) In FRANCE, the early period of this Art is clouded, as might be supposed, with uncertainty and barbarism. We have already noticed the earliest attempts in that Country at Xylography, which probably were made by German emigrants or settlers. (Art. 29. and Note (W.) at the end of ENGRAVING.) The same may be said of early prints in France from metal and copper-plate, some of which, such as the plates for a book published at Lyons, A. D. 1488, *An Emigration beyond Sea to the Holy Land*, (compiled from the Itinerary of Bernard de Breydenbach,) are copied on metal from the wood-cuts of the original Work. The original had appeared some years before at Mentz.*

Chalcography.

The first Frenchman whom we can positively name in the French School of Chalcography is *Jean Duvet*, called the *Master of the Unicorn*, not from the cipher he used, but from his frequent introduction of a unicorn into his designs. He was a goldsmith, born A. D. 1485 at Langres, who continued to exercise his graver, as appears from his dates, till he attained the age of seventy-nine. His style, however, did not require (according to M. Bartsch, who describes forty-five pieces) a stronger eyesight than was compatible with that advanced term of life.

Duvet, the Master of the Unicorn.

Our next names, with which we proceed to fill up the following century, are *Etienne de Laulne*, *Noel Garnier*, *Solomon Bernard*, *Voeiriot*, *Boivin*, and *Philippe Thomassin*.† The last of these was the instructor at Rome of Jaques Callot, whose judicious combination of the point with the graver we shall hereafter notice.

De Laulne, N. Garnier, S. Bernard, Voeiriot, Boivin, and P. Thomassin.

Leonard Gaultier, or Galter, who flourished about A. D. 1610, imitated Crispin de Passe and the Wierinxes. (Art. 40.) His designs were chiefly his own, but he sometimes engraved after Raffaelle and others. His burin has the fault of stiffness, but the precision and the neatness are not less remarkable than the surprising number of his works, amounting in the collection of the Abbé de Marolles to upwards of eight hundred. The name of *Audran* is also famous in the annals of French Chalcography. We do not here mean to include Girard, who claims a place hereafter as uniting the point with

L. Gaultier

Claude and Charles Audran.

1596. He was the pupil of Lucas Vorstermann the elder, but derived his chief improvement from their common friend and instructor His hand, indeed, seems to have obeyed no other mind but that of Rubens; and his portraits, after Vandyke, are no less estimable.

In the above triumvirate, as it is sometimes called, of the Flemish School, the peculiar excellence of Pontius has been pronounced to consist in pictorial force and general effect: that of Scheltius a Bolswert in facility and expression: that of Vorstermann in delicacy and variety. Some Flemish followers and pupils of Pontius may here be mentioned. *Nicholas Lauwers*, a historical and portrait Engraver, was born at Leuze near Tournay about A. D. 1620. He studied at Antwerp, and has engraved after various masters, but his best prints are after Rubens, in the style of Paul Pontius, whose manner he successfully followed, but followed of course at some distance behind his master. *Nicholas Ryckman*, born also about A. D. 1620 at Antwerp, adhered to the same School with a neat but formal and stiff burin, and in general an incorrect outline. *Conrad Lauwers* executed in the same style as his above-named brother Nicholas, but not so successfully, several plates after the Flemish masters. *Alexander Voet*, born 1613 at Antwerp, is another supposed pupil of Pontius, but drew incorrectly. *Matthew Borrekens*, born about A. D. 1615 in the same city, also imitated Pontius, but not successfully. He was much employed by printsellers in copying the plates of eminent Engravers.

* The *Catalogue of an Amateur*, to which we have frequently referred, observes, concerning the great Work of Houbraken, entitled *Portraits of Illustrious Men*, that the ornaments which surround the portraits were designed, as well as chiefly engraved, by Gravelot; and adds a belief that the greater part of the portraits, as well as their accessories, were sent by Knapton to Houbraken in a very forward state, the work of Gravelot. This is the case, for instance, with the beautiful plate of Anne Boleyn, which the writer ("the Amateur") himself possesses in different states. The first, though very forward, has none of the work of Houbraken.

* The plates only differ from their wooden original in being more incorrectly drawn, and in the addition of some vessels and figures to the respective views of Oriental ports and cities described. The execution is neat but barbarously stiff and hard.

† *Etienne de Laulne* was born at Orleans in 1520, and died in 1595 at Strasburg, where he is supposed to have learned the Art, but from what instructor is not known. His plates, amounting to three hundred and ninety, are chiefly from his own designs. Some are very excellent copies from Marc Antonio. His designs are often well imagined, but his drawing of the figure is defective, and his chiaroscuro, like that of his contemporaries, almost nothing. *Noe* or *Noel Garnier*, already noticed as an Engraver on wood, (Art. 29.) was born about 1520. He has been called, without any authority, the first introducer of the burin into France. He was probably a goldsmith, and has engraved in the rudest style possible forty-eight plates, representing Arts, Sciences, and Trades; together with some grotesque ornaments, and an alphabet of capital letters, eleven of which we find accurately described in the *Catalogue of an Amateur*. *Solomon Bernard*, called *le petit Bernard*, from the small size of his works, was a native of Lyons, and contemporary with the preceding artist. He was a pupil of Jean Cousin, a father of the French School. (see PAINTING, p. 490.) and he transferred both to wood and to copper many tasteful designs, which show much improvement in the Art.

Pierre Voeiriot, or *Woeiriot*, was another goldsmith, born in 1525, whom we have also named among our Xylographers. (Art. 29. p. 791.) His works on copper are not discreditable for that period. The copper-plates of his contemporary, *René Boivin*, who likewise divided his time between wood and metal, have been remarked to bear some small resemblance in their style to Cornelius Cort, (Art. 36.) of whom *Philippe Thomassin*, born at Troyes in Champagne, A. D. 1536, was a disciple, and engraved at least two hundred plates. The style of Thomassin is pronounced by Strutt to be clear and firm, but stiff and mannered, and with a total absence of effect.

Engraving.

the burin, but we must notice *Claude* his father, and *Charles* his uncle, from each of whom he received instruction, and who, as burinists,* emulated the style of Cornelius Bloemaert. (Art. 40.) *Pierre Lombart*, the *Davids*, and *Michel Lasne* are of this period.† *Jacques Blondeau*, of later date, engraved, in conjunction with Bloemaert, Spierre, Clouet, &c., a series of plates from the Pictures by Pietro da Cortona in the Palazzo Pitti at Florence. The Prints of Blondeau are cold and silvery, and without much effect. His drawing too was defective. *Charles de la Haye*, who assisted in the same Work, was a better draughtsman but a worse burinist.

P. Lombart, the Davids, M. Lasne, and J. Blondeau

De la Haye.

The XVIIth Century was prolific in French burinists of the highest class. *Mellan* and the family of *De Poilly*‡ were followed, the former by *Nanteuil*, *Frosne*, *Thiboust*, &c., and the latter by *Pitau* of Antwerp, *Chateau*, *Nollin*, *Scotin*, *Rouillet*, *Spierre*, and several others.*

Family of De Poilly, &c.

Chalcography

---

* *Charles Audran*, born at Paris in 1594, was the younger and more eminent of the brothers. He studied at Rome, and seems to have been inclined to adopt the manner of Lucas Kilian and the Sadelers. (Art. 39. 40.) The Abbé Marolles, who gives him high praise, ascribes to him one hundred and thirty pieces. He lived to the age of eighty, and saw the fame of his two nephews and pupils Germain and Gerard arrive at full maturity.

An early artist, whose name is unknown, remarkable for delicate and elaborate finishing, and called from his monogram *le maître à l'écrévisse*, or the *Master of the Crab*, may here be noticed. The *Peintre Graveur* (vol. vii. p. 527.) records four and twenty pieces from his graver, chiefly sacred subjects. *Thomas de Leu*, born at Paris about 1570, may be also quoted for neatness of execution.

† *Pierre Lombard* or *Lombart* was born at Paris about A. D. 1612. From whom he learned to engrave is not known, but he was a scholar of Simon Vouet. (Painting, p. 490.) The lines of his graver are neat but laboured, and his style is without much taste. "His dark shadows," in the words of Strutt, "want force and boldness, and his lights are too evenly covered, which gives a flatness to his figures and prevents their being relieved from the background with any striking effect." This fault pervades even his twelve celebrated half length portraits called the "Countesses of Vandyke," which he engraved in England, having repaired to this Country shortly after the Restoration, where his chief employment was for the booksellers. For this reason some have placed him among English Engravers.

The two brothers, named *David*, with the Christian names of *Charles* and *Hieronymus*, or *Jerome*, were born at Paris about A. D. 1605. Both pursued the same style, a style formed upon numerous preceding models; but Charles, whose works are in much estimation, was the better Engraver. His outline of the figure is in a great degree correct, but he overcharges it by marking his muscles too powerfully. "His lights," says Strutt, "are scattered and too equally powerful, like those of his contemporary artists," and his work is rendered disagreeable by "crossing his second strokes too squarely upon the first."

Michel Lasne was a dexterous Parisian follower of Bloemaert (Art. 40.) and Villamena. (Art. 37.) *Etienne Baudet*, his contemporary of Blois, quitted the manner of Bloemaert, and became eminent for uniting the point with the burin in the style of J. B. Poilly. (Art. 56.)

‡ *Claude Mellan* was born at Abbeville in 1601, and died 1688, at Paris, where he received his first instruction. He visited Rome at the age of only sixteen, and meeting with his Countryman, Simon Vouet, (Painting, p. 490.) he studied Painting under that master, but quitted Painting for Engraving, to which, for the remainder of a long life, he applied himself; working chiefly from his own designs. His plates, engraved at Rome, are numerous and much valued: particularly those after "busts and statues in the Giustiniani Gallery;" a portrait of the "Marquis Giustiniani;" and another of "Pope Urban VIII." He is said by Florent le Comte to have declined an invitation from Charles II. to visit England: preferring to remain in his own Country, and under the patronage of his own King, who assigned him apartments in the Louvre, where he died universally honoured and beloved at the age of eighty-seven. His Prints, engraved at Rome, are executed in the usual manner, but he afterwards adopted the novelty for which his name has been notorious, of representing objects by single ranges of lines, instead of crossing the strokes. His shadows are expressed by the same strokes being made stronger and brought nearer to each other. The effect produced by this method of Engraving is soft and clear. In single figures and small subjects he succeeded very happily: but in large compositions where great depth of shadow is required he has failed in proportion to the force of colour wanted.

His "Face of Christ," or "Sudarium of St. Veronica," is executed entirely by a single spiral line, begun at the extremity of the nose and continued over the whole face and background without a single break. The subject is an old Romish legend, that a handkerchief was presented to the Saviour on his way to Calvary by the Saint Veronica, which, after having wiped his face, he returned to her with a representation of his countenance miraculously impressed upon it. It is difficult to say which of the two things is the more whimsical: the legendary subject, or Mellan's graphic treatment of it. We cannot help associating this performance with those *wonders of art* in which a frontispiece engraved by John Stur of London represents the head of George I., composed of lines written so small that the reader uses a microscope and finds them to contain the Lord's Prayer, the Commandments, the Prayers for the King and Royal family, and the twenty-first Psalm! Or, to go from follies of the eye, to those of the ear, our thoughts wander irresistibly to a deservedly celebrated Violinist and Musician of our times, who sometimes catches at ignorant applause by tricks, lucrative enough certainly, but unworthy of his taste and skill. Mellan is the Paganini of Engravers. (See Note (G.) at the end of Engraving.) According to Le Comte the works of Mellan amount to three hundred and forty-two pieces.

Mellan left no son to inherit his eccentricities or his ability; but from Abbeville, his native town, arose the family of *De Poilly*, of which two brothers, *François* and *Nicolas*, were excellent burinists. From their father, a goldsmith, they early acquired the mechanical facility for which the Art in the XVIIth Century is so much indebted to that occupation. François, the elder brother, is one of the most skilful handlers of the graver that France has ever produced. Boldness, firmness, clearness, brilliancy, and accurate finishing characterise his prints, which amount, according to M. Bartsch's *Guide to Engraving*, (*Anleitung*, &c. vol. i. p. 184.) to two hundred and twenty-six. But he is monotonous, and betrays a peculiar coldness and lifelessness, which, indeed, belonged to *Pierre Daret*, the master under whom, for three years, he studied, and who (though a pupil of Bloemaert) is more known by the number of his works (two hundred and ninety-six Engravings) than by their merit.

* A renowned follower of Mellan was *Robert Nanteuil*, born at Rheims A. D. 1630, who died in 1678 at Paris, and whose Works during those forty-eight years of life amount to at least two hundred and eighty Plates, (the number in Mariette's collection,) executed with almost unexampled care and precision, and by an artist whose learned education and conversational talents drew him frequently into Society, both among the courtiers of the "Grand Louis," and among men of Letters and Science, his contemporaries. Louis XIV. seems to have created the place of designer and Engraver to the Cabinet purposely to confer on Nanteuil a yearly pension of 1000 livres. The progress of genius in this admirable burinist is traceable throughout his Works. At first, like Mellan, he appears to have worked with single courses of lines: a process exemplified in his portrait of "Louis Hesselin, Counsellor of State." To represent flesh in his portrait of "Christina, Queen of Sweden," 1654, he used stippling only: while for that of "Edward Molé, President of the Parliament," he employed only unbroken lines. In his subsequent labours, Nanteuil appears to have brought together into powerful union the elements of which he had now ascertained the properties peculiar to each. It was to the invention of Nantueil that the Art is indebted for such a combination of lines with stippling, (see first Note to Art. 16.) as has enabled him to express, throughout his carnations, the qualities of softness and firmness, whether in light, shadow, or middle tint; in his representation of human hair, the glossiness and lightness, together with the effects resulting from each variety of colour or of form; and in his draperies, whether furs or silks, linen or woollen, the peculiar texture of every garment. With all this attention to minuter points he was a perfect master of expression. He drew correctly, and his excellence as a portrait-painter in crayons introduced him to his Royal and munificent patron, of whom he painted a portrait. The Art of Engraving he learned, according to some French writers, from his brother-in-law, *Nicolas Regnesson*, of Rheims, who, from being only five years older than Nanteuil, was, in Strutt's opinion, more probably the pupil than the preceptor. Their styles certainly correspond: and Nanteuil's early predilection for Chalcography is evident from his having engraved, while yet a youth at College, his Thesis in Philosophy.

Engraving. Van Schuppen.

Antwerp contributed a portion of her sons besides Pitau to the French School of Engraving. *Van Schuppen*, the successful pupil of the celebrated Nanteuil, was from Antwerp, as also were *Gerard* and *John Edelinck*, whose talents M. Colbert and the then Court of France were not slow in appreciating and attracting to Paris.* Chalcography. The Edelincks.

A formidable rival of Nanteuil as a burinist was one who seems to have been his own master in Art, *Antoine Masson*, born at Louri near Orleans, A. D. 1636, Mass whose hand was of necessity made familiar with the graving tool by his having been brought up to the occupation of a gun Engraver. He introduced himself to the Parisian Public as Nanteuil did, by painting portraits. Like Nanteuil, too, he became Engraver to the King; and it was with his burin that he cut out for himself a path to fame entirely new, such as only genius like his could have attempted successfully.† At the

Jean Frosne, born at Paris about A. D. 1630, was a very indifferent imitator of Nanteuil. Forty-three portraits, however, engraved by him were thought worthy of a place in the collection of the Abbé de Marolles.

Benôit Toiboust, whose slight, open style resembles that of Mellan, was a French Engraver of this period, who was employed some years at Rome; but he followed Mellan in a very different manner from Nanteuil, and his Plates are miserably defective in taste and correctness.

The family of *Thomassin* also was remarkable at this period. Simon Thomassin, a descendant of Philippe above mentioned, was a burinist who had studied with some reputation in the Academy founded by the French King at Rome. But his style is heavy and laboured, and that of his son Henri Simon Thomassin, born at Paris in 1688, not superior. *Pierre Simon Thomassin*, born at Paris A. D. 1640, was a successful follower of Nanteuil

From the School of Mellan we turn next to that of *De Poilly*. The style of François de Poilly does not sufficiently distinguish drapery from flesh, nor relieve either from his backgrounds. His Plates are covered with rectangular crossings, where powerful second strokes exactly at right angles to the first form a small square between the intersections of almost every four lines. He resided seven years at Rome, where he died at the age of seventy, A. D. 1693. Among his pupils and followers are *Gerard Scotin*, another Parisian, born in 1642. (whose nephew, the *younger Gerard*, in conjunction with Baron and Ravenet, engraved for Hogarth the plates of Marriage à la Mode.) *Jean Baptiste Nollin*, also born at Paris in 1655, has the credit of being one of the best scholars of De Poilly. From Paris, likewise, came *Giles* or *Egidius Rousselet*, born A. D. 1614, who is also reckoned among the followers of Bloemaert. *François Andriot*, born A. D. 1655, whose style is much inferior to De Poilly, yet who scrupled not to engrave after the greatest French and Italian Painters; and *Etienne Picart*, called the Roman from his long residence at Rome, whose son *Bernard* became celebrated for a similar contrivance to that of Henry Goltzius, (Art. 40.) by engraving a set of seventy-eight Plates in imitation of the old Engravers, under the title of *Les Impostures Innocentes*. They were published in one volume after his death, in 1738. *Jean Boulanger*, who was born at Troyes in 1613, and whose father, a Painter, was a respectable pupil of Guido, for some time followed the style of François de Poilly, which he quitted for the dotted system of Jean Morin.

An able scholar, perhaps the ablest of François de Poilly, was *Jean Louis Roullet*, born at Arles in Provence A. D. 1645. He had studied previously under Jean l'Enfant, a disciple of Mellan, and subsequently qualified himself by ten years of application in Italy to put forth performances worthy of the great masters after whom he employed his graver. His print of the "Marys with the dead Christ," after the celebrated Painting by Annibal Carracci, (which has passed from the Orleans' Gallery into the possession of the Earl of Carlisle,) is one of the most admirable productions of the graphic Art.

But an equally eminent artist, and likewise pupil of De Poilly, was *François Spierre*, who was born at Nancy in 1643, and died at Marseilles only in his thirty-eighth year. He was a Painter of History in something of the style of Pietro da Cortona, (PAINTING, p. 474.) but the Works of his burin establish his claim to admiration. "When Spierre," says M. Watelet, "came to Rome, Cornelius Bloemaert was in the full vigour of his powers and the meridian of his fame. Spierre occasionally imitates him. But both Bloemaert and De Poilly confined themselves to one style; whereas Spierre could vary his at pleasure. He sometimes employed only a single course of lines, which he managed with a degree of ease and freedom superior to Mellan, so that he may be said to have beaten three of the greatest historical Engravers of that Age, each at his own weapons."

Nicholas Pitau, born at Antwerp A. D. 1633, is included by M. Bartsch among the followers of De Poilly, and is supposed to have been a disciple of that master. But Pitau's burin is remarked to be more vigorous and spirited in its execution than De Poilly's. Pitau's "Holy Family," after Raffaelle, is a theme of universal praise for its beauty of handling, purity of drawing, and harmony of effect. His portraits and historical pieces are equally admirable. He died at Paris in 1676.

Guillaume Chateau, or Chasteau, born at Orleans in 1633, was employed and patronized by M. Colbert and the Court of France. He had been a pupil at Rome of the younger Greuter. (Second note to Art. 37.) The Prints which he executed entirely with the graver are in the style of De Poilly and Bloemaert; (Art. 40.) but he was more successful in his later manner. Few ever handled the point with more picturesque freedom, taste, and spirit.

* *Pierre van Schuppen* was born at Antwerp in 1623, whence, after obtaining the rudiments of his Art, he removed to Paris and became the pupil of Nanteuil. At Paris, in the style of that master, he engraved several portraits from his own designs, not inferior to the best productions of that time; (a season of splendid patronage from the Court of Louis XIV.;) and at Paris brought up his son of the same name, called Schuppen the younger, to the profession of an historical and portrait-painter. Schuppen the elder died at Paris A. D. 1702.

Antwerp likewise gave birth to *Gerard Edelinck*, who, as an approved disciple of Cornelius Galle, (Art. 40.) was eminent in his own Country before he was drawn by the irresistible solicitations of the French Minister, in 1665, to the service of the Court of France. Louis XIV. gave him apartments in the Gobelins, a pension, and the honour of Knighthood, which was conferred soon after his admission into the French Academy. Strutt remarks a union of freedom with delicacy in the style of this artist; and Watelet observes of him, that his execution, at once bold and finished, gives a profound feeling of colour; that he is more detailed and perfect (*précieux*) than Bolswert or Pontius, (Art. 40.) without being less picturesque, and that he never produced a Work of mediocrity. Le Brun, therefore, some of whose finest Paintings he engraved, must be pronounced not less fortunate than Rubens. *John Edelinck* was a close but not successful imitator of his brother Gerard; and a son of Gerard, named *Nicolas*, who engraved for the Crozat collection, though not totally discreditable to his father and instructor, was quite unequal to him.

† His Plates reach the number of one hundred and fifteen. "Masson seems," says Strutt, "to have had no kind of rule to direct him with respect to the turning of the strokes; but twisted and twirled them about without the least regard to the different forms he intended to express, making them entirely subservient to his own caprice. Yet the effect he has produced in this simple manner is not only far superior to what one would have supposed, but is often very picturesque and beautiful." In his famous Print after Titian, "Christ with the two Disciples at Emmaus," the eccentricities and originalities of this Engraver are combined with passages of the finest effect. The arms of the figure to the right of Christ, the hat and drapery of the figure on his left, the clouds at the top of the Picture, and under the table a dog which looks, says Watelet, as if made of straw: all these representations seem to defy any prescribed rule. But yet, throughout the Work, so judicious is the keeping, so harmonious and Titian-like the tone of the whole, and so varied the apparent texture of the different objects introduced, that this Plate has been regarded by all subsequent Engravers as an admirable study and model for their guidance. The cloth on the table in this Engraving is so peculiarly finished that the Work has the name of "The Table Cloth;" and a similar circumstance is remarkable with regard to another famous Print, called "The Grey-headed Man," which derives its popular appellation, not from Gillaume de Brisacier, the Secretary to the Queen of France, and the subject of the portrait, but from the admirable execution by which we recognise the white hair and aged complexion of the original. So also the portrait of the Count d'Harcourt is called "Le Cadet de la Perle," on account of the pearl hanging from the warrior's left ear. Masson engraved several heads, the size of life, but in these portraits he has been less happy than in the ordinary operations of his burin. (See Art. 22. and its note.) His daughter, *Madeleine Masson*, born at Paris

Engraving. The Drevets.

close of the XVIIth and commencement of the following Century the *Drevets*, father and son, are conspicuous among French burinists. *Pierre Drevet the elder* was born at Lyons in 1664, and died in 1739 at Paris. In his native city he received instruction from his townsman, Germain Audran, and afterwards removing to Paris for improvement probably became a student in Engraving under Gerard Edelinck. His masterly command of the graver; his touch firm, yet communicating the most delicate softness; his perfectly correct outline; and a style highly finished as well as implicitly faithful to nature, enabled him to increase and to participate the celebrity of Hyacinthe Rigaud, the great portrait-painter, after whom he engraved. His son, *Pierre Drevet the younger*, was born at Paris in 1697, and died there the same year with his father, of whom Watelet observes, that the elder Drevet, if his son had not exceeded him, might have been regarded as the finest portrait-Engraver that the world has seen.* *Claude Drevet*, a native of Lyons, who died at Paris in 1768, was a cousin and pupil of Drevet the younger. He engraved some highly finished portraits after Rigaud.

Jean Daullé.

Jean Daullé, born A. D. 1703 at Abbeville. was received into the Academy at Paris in 1742; an honour to which his graphic merits fully entitled him. In the *méchanique* of his Art he may compete with almost any of his predecessors; but his drawing does not equal his handling. Watelet highly praises his "Countess of Feuquieres" after P. Mignard, who was the lady's father, and who represents her in the picture holding his own portrait.

John George Wille has been sometimes classed among French Engravers, but we have already spoken of him in the German School. (Art. 39.) M. Bartsch, enumerating the modern burinists of France, instances the Works of *Etienne Fiquet* as being delicately and tastefully finished and highly valued, consisting of several small portraits. He was born at Paris A. D. 1731. *Pierre Savart*, born A. D. 1750, in the same city, follows Fiquet in the same style and with equal success.* *Jean Jacques d'Avril*, another eminent Parisian, born in 1756, was a pupil of Wille.

Etienne Fiquet.

Chalcography. P. Savart. J. J. d'Avril.

(42.) We were next to consider Spanish Chalcographers. For these we search the pages of their Countryman, Cean Bermudez, in his *Diccionario dellas Bellas Artes*, but we search in vain for burinists worthy of mention in the same class with those we have just been enumerating. Minor artists, whose chief employment was to engrave ornamental work, coats of arms, head-pieces, tail-pieces, and frontispieces for books, were to be found in Spain as early as the beginning of the XVIIth Century; and the number, whether working with the burin or with the etching tool, or with both, might, throughout the two next centuries, amount to about a hundred, principally from the cities of Madrid, Seville, Valencia, and Zaragosa.† But, on the authority of the Spanish writer alluded to, the Art of Engraving may be pronounced to have scarcely had existence in Spain until after the foundation, A. D. 1744, of the Academy of San Fernando at Madrid: when in a later era simple Chalcography had given place to the modern union of the point with the graver.

But few burinists, simply so called, of *Spain*;

(43.) Of English burinists in the practice of simple Chalcography we are constrained to make a similar remark. Their number and their merit have been so inconsiderable that we pass them over. In the compound process, indeed, uniting the point with the graver, we shall presently have the agreeable duty of recording them as eminently successful. "The English," observes M. Bartsch, "have not a single master of any great importance who has used the burin alone: but in compensation for this, the number in England is so much the greater who have combined, though often very slightly, the use of this instrument with the previous work of the etching needle, and who in the latter (compound) branch of Engraving have produced the finest specimens of the Art."‡

or of *England*.

---

about A. D. 1660, engraved some portraits very neatly in her father's style, and some also of the natural size, which latter show the same imperfect and unsatisfactory result, and the same misdirection of valuable time and labour wasted upon the whimsical rage of that day for these colossal performances.

* Drevet the younger, at the age of only thirteen, produced a Plate which was the surprise and admiration of his times; at nineteen he engraved his folio Plate of the "Resurrection," and at twenty-six his celebrated whole length portrait of "Bossuet, the Bishop of Meaux," which is thought his master-piece in portrait, though some prefer his portrait of the "Conseiller d'Etat, Samuel Bernard." This chief of burinists is remarkable for expressing (without any affected display of dexterity in handling his instrument, and yet with exquisite finish) every peculiarity of texture in the surfaces of natural objects. In delicacy he stands unrivalled, though in boldness and picturesque effect others may have surpassed him. Among his historical Prints the "Presentation in the Temple," after Louis de Boullogne, ranks first.

Jaques Lubin, a native of Paris, was a successful follower of Gerard Edelinck, and a cootemporary with the elder Drevet. The style of the Drevets seems to have been emulated by *François Chereau*, who likewise studied in the Audran School. Correct design and beautiful execution distinguish his Works; but they betray at the same time a degree of metallic coldness which perhaps the etching needle only could have prevented. His brother and pupil *Jaques*, who died at Paris in 1757, was an estimable artist in the same style, who, in later life, quitted the management of his burin for that of a Print-shop. *Nicolas Gabriel Dupuis*, finding his health impaired by the steams of aquafortis, quitted etching for the use of his graver only. Another pupil of the Audran school was *Nicolas Dauphin de Beauvais*, a native of Paris, who engraved a Plate from Sir James Thornhill's Paintings in the dome of St. Paul's, (PAINTING, p. 485.) and whose style, much applauded by Huber, resembles in his best Plates the style of Edelinck.

* *Charles Clement Bervic*, another Parisian, born A. D. 1736, was a pupil of J. G. Wille, and was received into the Royal Academy of Paris in 1784. He was also a Member of the Institute and Chevalier of the Legion of Honour. With the fault of occasional fondness for gloss and glitter he is designated as being confessedly the ablest burinist of his day and an excellent draughtsman. His Louis XVI. after Callet; his "Nessus and Deianira" after Guido Reni; and above all his Laocoon from the Musée Napoléon will always remain chefs-d'œuvre among the chalcographic specimens of France. *Maurice Blot*, born at Paris A. D. 1754; *Pierre Audouin*, famed both for historical pieces and for his portrait of Louis XVIII.; *R. U. Massard*, celebrated for his peculiar talent of Engraving from sculpture; and *Augustin Boucher Desnoyers*, of whom, as still living, we prefer to repress our criticism, are names worthy of the Art and of their Country.

† See Note (Z.) at the end of ENGRAVING.

‡ Although the art of taking impressions from metal Plates was not known or practised in this Country till long after its invention, yet the use of the burin for engraving plate, armour, jewellery, &c. is of very ancient date in England. The engraved Plates on some of the oldest tombstones and monuments in many of our Churches, testify no ordinary skill of the burinist considering the early period of those performances. Specimens are not unfrequent of which the workmanship may be traced to the first half of the XIVth Century. But the best of these seem to bear no comparison with Works long previous by Anglo-Saxon artists, as appears from the relic preserved at Oxford, termed Alfred's jewel. That enlightened person was an encourager of Works of taste; but the influx of Danish barbarism which followed his reign soon swept away almost all traces of refinement. The superiority of Saxon artists in the kindred Art of Coining has already been noticed. (Note (A.) at the end of ENGRAVING.) On the subject of ancient graphic Works in Britain we refer the reader to Strutt's Essay

Engraving

The *dry point* another simple process in Chalcography.

The Dry Point.

(44.) The second simple process in Chalcography (Art. 34.) is performed by the DRY POINT. (See 2d note to Art. 19.) For this process the preparation of the outlines on the copper-plate is the same as for working with the graving tool or burin.* The forms outlined on the copper are then filled in with shadings cut into the metal by means of a sharply pointed needle, which, when ground in a groove on the whetstone, must be carefully preserved in its conical shape, and free from any angular edge; otherwise it will not mark the plate evenly, but must produce irregularities and roughnesses. As soon as one course of strokes for shading is completed, the bur which has been raised in making them is cleanly scraped away. A second course of lines is then proceeded with; and afterwards, if necessary, a third, in a similar manner.†

Andrea Meldolla.

The first introducer of the dry point upon plates of metal for the purpose of obtaining printed impressions is unknown. *Andrea Meldolla*, who, according to the Abbé Zani, (*Materiali*, p. 207.) has been by all previous biographers confounded with Andrea Schiavone, is represented by M. Bartsch as having been the earliest who brought this mode of operation into frequent practice.* Chalcography.

The dry point (so termed to distinguish it from the etching needle, which it only differs from in being used on the dry, naked, or unvarnished copper) has seldom, except by some remarkable artists, been used alone. The use, indeed, of this instrument as an auxiliary is now universal. It has been chiefly employed in combination with the graver, with the process of etching, or with both. Of the celebrated *Rembrandt*, (see PAINTING, p. 482.) six pieces are enumerated by M. Bartsch as being produced by the needle only, unassisted by the action of aquafortis or etching.† Of the dry point alone, a landscape called "The Canal" may be quoted as one of the most remarkable specimens. For the simple process of etching only, to which we shall presently come, "Joseph relating his Dream" may be referred to as most admirable: and thirdly, for the perfections of etching and of the dry point united, we turn to his chef-d'œuvre, the "Hundred Guilders" Print, so called from that sum (about £10) having been the price of an impression soon after its publication. It represents the Saviour healing the sick multitude. A portrait of Rembrandt's munificent patron, the "Burgomaster Six," combines, it is thought, all the various modes. The death of Rembrandt is dated by Strutt A. D. 1764; by Bartsch 1668. The last-mentioned writer published at Vienna, in 1797, a complete catalogue, which no collector should be without, of the prints of Rembrandt. Rembrandt

Among French artists, an amateur and able writer upon the Fine Arts, *Claude Henri Watelet*, born at Paris A. D. 1718, whose pages in the *Encyclopédie Méthodique* attest his good taste and extensive research, made several not altogether unsuccessful attempts to execute with his own hands some large Plates by means of the dry point only. He died A. D. 1786. Claude Henri Watelet.

In England, two names are conspicuous in modern

attached to his *Dictionary of Engravers*. The fifth volume of Walpole's *Anecdotes of Painting* is devoted to English Engravers, commencing in the reign of Henry VIII. with *Thomas Geminus*, or *Gemmie*, A. D. 1545, whose anatomical Plates for a new edition of Vesalius are, says Ames, (*Typographical Antiq.* p. 218.) "some of the first examples of rowling press printing in England." A subsequent Edition in 1552 was dedicated to King Edward VI. A former engraved Work, however, had been already published by Thomas Raynalde in 1540, entitled *The Woman's Book*. In the succeeding reign of Elizabeth, Archbishop Parker is distinguished as a patron of the Art, giving employment to a Printer and two Engravers in his Palace at Lambeth. The Archbishop's portrait, by Remigius Hogenburgh, was the first Engraving of the kind, according to Vertue, that has appeared in England. *Wenceslas Hollar*, *Francis Barlow*, and *William Faithorne the elder*, in the reigns of Charles I. and II., *Nicholas Dorigny*, knighted by George I., and *George Vertue* the antiquary (from whose papers the Walpole *Anecdotes of Painting* are compiled) are well-known names creditable to the progress of Engraving in this Country. The numerous portraits by *Faithorne*, executed almost entirely with the graver, are admirable performances, and in deservedly high estimation.

* See Note (A A.) at the end of ENGRAVING.

† The number of impressions which can be taken from a Plate executed with the dry point depends (as in every other kind of Engraving) upon the delicacy of the work. But it seldom yields above one hundred and fifty good impressions; and requires to be hot-pressed, as well as to be under the management of a careful and skilful pressman. The use of the dry point in the first instance calls for great practice and much ability on the part of the Engraver. He may with tolerable facility produce strokes in a straight direction, but he will find bold curved lines very difficult, as the force which he must employ for entering the metal is scarcely compatible with freedom of handling. Plates, therefore, thus executed can be only scratched in a superficial manner, and can never give effect to strong dark shadows. On this account the dry point is suited only to Prints of small size; or if employed on larger Plates the strong shadows should be previously etched. (Art. 45.) Some artists, in order to accomplish dark tones, omit to use the scraper, and leave untouched on the copper the bur (Note (AA.) at the end of ENGRAVING) thrown up by the needle-point. A rich velvet-like black is thus produced by the quantity of printing ink which clings to the lines in this rough state; but the effect is of short duration, becoming necessarily fainter every time the pressman wipes the Plate, (Note to Art. 32.) until the tone originally given is quite lost. In small heads and figures, the dry point, by its thin delicate lines, gives admirable softness to the carnations. The lines scratched by this instrument come out as clear in the impression as those cut with the burin; but have a wiry appearance, are seldom free, and their delicacy approaches often to feebleness. Straight lines, indeed, or lines but slightly curved, may be well marked and made scarcely distinguishable from those cut with the graver. Dots with the dry point are discernible by their perfect roundness and clearness; whereas dots made with the graver are pointed. (Notes to Art. 16.) Dots in etching are of an oblong form and rough.

* See Bartsch's *Anleitung*, &c. vol. i. sec. 440. *Son chef-d'œuvre*, says the Abbé Zani, speaking of Meldolla, *qui représente l'enlèvement d'Hélène en deux feuilles, est marqué* A. M. *et de ses noms de baptême et de famille*. The greater part, if not all the Works attributed to Meldolla, show his use of the dry point; and though some evince a few superadded touches of the burin, none of them have been etched. He apparently worked, says our author, (*Peintre Graveur*, vol. xvi. p. 38.) upon tin plates, of which the few perfect impressions that could be taken (rarely more *on copper* than one hundred and fifty) make good specimens from the hand of this artist very scarce. They appear, with few exceptions, to be after designs of Parmegiano, for whose Works they have sometimes been mistaken; but the drawing of Meldolla, compared with that of his model, is often faulty and almost always betrays carelessness. The difference, however, is so little between Meldolla and Schiavone that they are still regarded by good critics as one and the same person.

† The following Plates, seven in number, by Rembrandt, are entirely wrought with the dry point unassisted by etching; namely, the "Ecce Homo," dated 1655; the "Three Crosses," 1653; the "Skater;" the "Canal," a landscape; the "Group of Trees," a landscape; a portrait of the "Elder Haaring;" another of the "Burgomaster Six;" and "The Painter after the Model." In the two last mentioned pieces the burin also is introduced, but not etching. Perhaps no artist has used the dry needle, even upon previously etched Plates, so frequently and so successfully as Rembrandt. A great number of his Plates are very lightly etched, often only etched in their outline, and afterwards finished with the dry point, and having even the strongest shadows put in by the same instrument. As examples of this we refer to his "Hundred Guilders" Print; to his "Faustus;" and to his portraits of "Abraham France," of "John Lutma," of "Ephraim Bonus," and of "Johann Sylvius."

Engraving. Art for this style of Engraving. *Thomas Worlidge*, a native of London, flourished about A. D. 1760. He was a painter of miniatures, and his drawings on vellum in Indian ink and black-lead are held in great estimation. He attempted portraits in oil, but not finding the encouragement he expected, he applied himself wholly to Engraving. He published and became celebrated for several half-lengths scratched in the style just mentioned of Rembrandt with the dry point, to the number of about fifty, one of them a copy of the "Hundred Guilders" print. A complete set of his numerous similar Engravings (a series of one hundred and eighty plates) from antique gems, is also very valuable. He likewise executed some larger historical prints, to which M. Bartsch concedes the praise of considerable ability. He died at Hammersmith in 1766, aged about sixty-five.

Thomas Worlidge.

Inigo Spilsbury.

Inigo Spilsbury, the next example to be mentioned, was born in 1730, and was residing as a printseller in London about A. D. 1760. Besides some works in mezzotinto, he engraved and published in numbers a set of fifty plates of gems. But he is chiefly to be here noticed for several small half-lengths and heads to the amount of about twenty-four, in Worlidge's manner, though by no means equally tasteful and artist-like with those of Worlidge. Among our own amateur Engravers to compete here with Watelet we must not omit to mention a distinguished native of Ireland, *William Baillie*, born about A. D. 1736, who after retiring from the army with the rank of Captain of Cavalry devoted his remaining life to the Arts. Captain Baillie engraved about one hundred Plates in various manners, but his most admired productions are after Rembrandt in the style of that master.

Captain Baillie.

Etching.

Etching, a third simple process in Chalcography

(45) Etching, the third Chalcographic process, which we have denominated simple, (Art. 34.) is in fact less so than either of the two foregoing, and comprises many essential as well as adjunctive particulars. It is called etching from the German *ätzen*, signifying corrosion; and the Germans, accordingly, who were among the first to practise it, give the term *ätzwasser*, or *etching-water*, to the dilution of aquafortis employed for the purpose. Leaving to a note (see (BB.) at the end of ENGRAVING) our description of the process, we proceed to an enumeration of our examples in this branch of the Art. On the subject, however, of etching, the same remark must be premised which was made respecting the dry point; namely, that it is seldom practised singly, but is almost always auxiliary to or assisted by other processes.

The earliest Etching extant is by Durer.

The origin of this ingenious substitute for the work of the graver was probably German. *Parmegiano* (PAINTING, p. 477.) seems to have introduced it into Italy, previously to whom *Albert Durer* (*Ibid.* p. 485.) practised it in Germany, as appears by the Print by Durer of St. Jerome, bearing date A. D. 1512: but that Durer was therefore the inventor, according to M. Bartsch's assertion, (*Anleitung*, &c. vol. i. sec. 445.) does not necessarily follow. Like most other inventions, its object was to accomplish with greater facility what had been performed already with much labour by other means. As by the discovery of Printing nothing was at first contemplated beyond a shorter method in imitation of writing; so the first Etchers, whoever they might be, aspired only to the most perfect resemblance of engraved Plates from the hand of the burinist. This idea prevailed even in the time of Abraham Bosse, a French Engraver of considerable merit, who, in a very useful Treatise on Etching, published towards the middle of the XVIIth Century, declares the perfection of Etching to consist in its approximation to the work of the burin. To obtain, therefore, as nearly as possible, the cleanness and sharpness of lines cut by the graver, a hard kind of ground or varnish was used, now long since exploded, through which the lines drawn by the Etching needle might exhibit the cleanest and firmest edge possible for resisting impenetrably all action of the acid poured upon them, and for confining the corrosive liquid rigidly within their channels. A more tractable sort of varnish, however, called soft ground, (note BB.) and more easily penetrable by the Etching needle, was subsequently introduced. Etching was found, in process of time, worthy of being classed separately, and to possess some intrinsic excellences to which few but the most practised burins could attain, yet attainable by every good draughtsman or skilful handler of a crayon pencil.*

Chalcography.

The needle different in its effects from the burin.

There is a peculiar charm of freshness in the first thoughts of an eminent designer, which the simple process of Etching has been frequently the happy means of preserving and multiplying. Many excellent Painters have employed their leisure in playful touches of the point or Etching needle. M. Bartsch, in his *Peintre Graveur*, instances several characteristic performances more or less finished of this kind. His first five volumes contain some extremely clever fac similes executed by himself after the masters of the Flemish and Dutch Schools. The same author particularizes in his *Guide to Engraving* the following names of artists whose Plates have been entirely wrought with the Etching needle, or in which the additional touches and finishings by the graver or the dry point are so slight as to be considered next to nothing. From the German School he selects

* The characteristic of Engraving from the burin only, Mr. Gil, in well describes to be *strength*, though seldom unincumbered by stiffness; while the peculiarity of Etching is *freedom*, though at the risk of losing force and wanting harmony, or of being less correct in outline than the slower and more deliberate motions of the graver. "From the shape," says he, "of the Engraver's tool (the burin) each stroke is an angular incision, which form must of course give the line strength and firmness, if it be not very tender. From such a line also, as it is a deliberate one, correctness may be expected, but no great freedom; for it is a laboured line, ploughed through the metal, and must necessarily in a degree want ease. Unlimited *freedom*, on the other hand, is the characteristic of Etching. The needle gliding along the surface of the copper meets no resistance, and takes any turn the hand pleases to give it. Etching, indeed, is mere drawing, and may be practised with the same facility. But as aquafortis bites in an *equable* manner, it cannot give the lines that strength which they receive from a pointed graver cutting into the copper. Besides, it is difficult to prevent its biting the plate all over alike. The distant parts, indeed, may be easily covered with wax," (stopping mixture, see Note BB.) "and the grand effect of the keeping preserved; but to give each smaller part its proper relief, and to harmonize the whole, requires so many different degrees of strength, such easy transitions from one into another, that aquafortis alone is not equal to it. Here, therefore, Engraving (with the burin) hath the advantage, which, by a stroke deep or tender at the artist's pleasure, can vary strength and faintness in any degree." Gilpin, *Essay on Prints*, p. 48.

The value, says M. Bartsch, (*Anleitung*, &c. vol. i. sec. 445.) of Engravings produced by Painters and Etchers, conscious of greater powers in design than in execution, must not be sought for in their style of handling; (that is to say, in any regular adaptation of peculiar lines and cross-hatchings, or in the production of a clear effect by carefully attending to the action of the acid on the metal;) their merit consists chiefly in the drawing, in the expression, or in the grouping: and certainly no style of Engraving could be better suited for such slight drawings as require no great effect of light and shadow.

Engraving. only two artists, *Jonas Umbach*, a native of Augsburg, born A. D. 1620, who died in 1700; and *Christian Bernard Rode*, born at Berlin in 1725, who died A. D. 1797, both of them Painters.*

Umbach. Rode.

Wyck. Among Flemish artists we might particularize *Thomas Wyck* of Haerlem, who came to England about the time of the Restoration, and was much employed. He painted sea-ports and shipping with small figures.†

Guido. In Italy, *Guido Reni*, whom we have already noticed as of the Bolognese School, (PAINTING, p. 474. 476.) one of the greatest masters of graceful design, executed a considerable number of charming Etchings. They unite masterly freedom and boldness with the same beauty of expression in the heads, and the same correct drawing in the extremities, as are known proverbially to characterise the Paintings of Guido. He died aged sixty-eight at Bologna, his native city, A. D. 1642. He was emulated very successfully in the use of the point by a contemporary Painter, for some time his pupil, *Simone Cantarini*, called from his birth-place *Simone da Pesaro*, who in Painting as well as in Engraving is allowed to have approached nearer to Guido than any other of his numerous imitators.‡ The Etchings of Simone, in the style of his master, would not be easily distinguishable from Guido's, but for their comparative deficiency in that correctness, (particularly as regards the marking of the extremities,) and in that taste for which the Etchings of Guido are pre-eminent. Strutt mentions *Giulio Carpioni*, born 1611, a Venetian Painter, in the style of Paul Veronese, (PAINTING, p. 476.) as a tolerably successful follower of Guido in Etching. *Pietro Testa*, born at Lucca, A. D. 1611, and thence called Il Lucchesino, a pupil first of Domenichino and afterwards of Pietro da Cortona, is another Painter whose Etchings, to the number of about thirty-nine, are held in considerable estimation. They have the merits as well as defects of his Pictures, and, while they discover surprising variety and powers of invention, are too often deficient in expression, neither portraying female grace nor manly beauty. They resemble the mannered style of Antonio Tempesta, but are of superior execution. A Neapolitan Painter, (born A. D. 1632,) *Lucca Giordano*, (PAINTING, p. 478.) is another pupil and assistant of Pietro da Cortona, who has left some masterly and very spirited Etchings. M. Bartsch (*Peintre Graveur*, vol. xxi. p 173.) records six specimens in the style of Spagnoletto, the artist's first instructor. *Giuseppe Diamantini*, born about A. D. 1600, in the Province of Romagna, is another Italian Painter whose Etchings, to the number of about forty Plates, are much esteemed and possess a rare union of grace, correctness, and spirit.*

Simone da Pesaro.

Carpioni.

Testa.

L. Giordano.

Diamantini.

Chalcography.

Compound Chalcography

Wood Blocks applied to Copper-plate Impressions.

(46.) Having now given some account of three distinct methods of Engraving on metal; which methods, from the circumstance of each being sometimes employed singly and unassisted by the others, we have called simple processes: we proceed to mention several combinations of these either among themselves or with other methods.

Compound Chalcography.

The first of these compound processes to be mentioned is the union of Wood-Engraving with Chalcography; a method alluded to (Art. 30.) as being considered the characteristic of chiaroscuro printing in Germany. An ancient German master, whose name *Mair*, with the date 1499, is affixed to his productions, has already been mentioned. (Note (W.) at the end of ENGRAVING.) M. Bartsch (*Peintre Graveur*, vol. vi. p. 367.) calls him a native of Landshut in Moravia.† The subject being first outlined on metal was then printed and the impression afterwards shaded by means of different blocks. Papillon, however, complains of this outline from copper-plate as greatly inferior to an outline from wood. He calls it poor and scratchy. *Maigre et égratigné*, says he, *il n'a ni l'expression ni la beauté de celui qui est gravé en bois.* He mentions a chiaroscuro Print in his possession from the hand of Abraham Bloemaert, of which the outline had been etched. But, in general, the Prints of Bloemaert thus executed are very spirited and produce a good effect. Among others, we may instance a "Holy Family;" a "St. Simon," with the instrument of his martyrdom; "The Woman with a Veil;" a "St. Jerome," after Parmegiano; and a "Naked Infant," after Titian. M. Bartsch, by some mistake, (*Anleitung*, &c. vol. i. sec. 638.) names *Cornelius* Bloemaert as the

Wood blocks applied to copper-plate impressions.

Mair.

Bloemaert.

---

* *Jonas Umbach*, of whom mention is made by Baron Heineken, etched with a light and spirited point several landscapes containing cattle and figures. His Plates, of which are extant upwards of one hundred and twenty, are mostly of small size and of an octagon form. *Rode*, the next named artist, who had been successively a pupil of Charles Vanloo and John Restout at Paris, and afterwards a student in Italy, brought back with him to Berlin the power of enriching the Churches and Palaces of his native Prussia with several highly valued Works. He etched a considerable number (upwards of two hundred Plates) after his own historical designs; several of them after the Pictures which he painted for various public edifices. He is described as working the needle after a peculiar manner of his own, rather using it as a brush than a pencil. His Prints are consequently free and spirited, but show marks of haste. It is observed, also of his historical figures, particularly of his females, that they want dignity. His younger brother *Henry*, who died prematurely at the age of thirty-two, was a professed Engraver, and a very creditable disciple at Paris of the famous Wille. (Art. 39.)

† *Quoique ses estampes*, says M. Bartsch, *sont gravées d'une pointe légère et qu'il n'y ait mêlé ni burin ni pointe sèche, elles ne laissent pas d'offrir un très-belle effet de clair obscur. Sa façon de graver est reconnoissable aux petits traits entrecoupés qui se suivent d'une manière savante les différentes formes. Ces traits sont plus ou moins serrés mais rarement couverts d'une contretaille. Ses estampes sont très-rares.* (*Peintre Graveur*, vol. iv. p. 137. *et seq.*)

‡ *Giovanni Batista Bolognini*, born at Bologna in 1611, was a pupil and imitator of Guido. (*Peintre Graveur*, vol. xix. p. 187.) *Giovanni Andrea Sirani* and his daughter *Elizabetta*. (*Ibid.* p. 147. 151.) of Bologna, were also successful followers in this School. He was a favourite scholar of Guido, and etched likewise in a free, spirited style. (*Ibid.* p. 161.) *Giulio Carpioni* of Venice, who in Painting followed the splendid style of Paul Veronese, is recorded likewise by M. Bartsch for his Etchings *à la Guido*. (*Ibid.* vol. xx. p. 175.) Also *Domenico Maria Canuti*, of Bologna, a distinguished disciple of Guido, etched several Plates in the manner of his master, which, though less spirited in execution, are neater and more finished. *Domenico Maria Bonavera*, of the same city, nephew and pupil of Canuti, followed in the same style. His Etchings are finished with the dry point. (*Ibid.* vol. xix. p. 222.)

* M. Bartsch gives the names of two modern Painters of Italy, both living in 1821, whose Etchings are remarkable: *Ludovico Sabatelli* at Florence, and *Bartolomeo Pinelli* at Rome. (*Anleitung*, &c. vol. i. p. 196. sec. 452.)

† "His mode of operating," says Strutt, "was extremely simple. He first engraved the subject proposed upon copper, and finished it as much as the artists of his day usually did. He next prepared a block of wood, upon which he cut out the extreme lights, and then impressed it upon the Print, by which means a faint tint was added to all the rest of the Work, excepting only to those parts where the lights were meant to predominate, which appear as if heightened with white paint. The Prints performed in the style above-mentioned," continues Mr. Strutt, "are extremely good representations of such drawings."

Engraving.

first who attempted works of this kind. Cornelius was certainly eminent, but not as a Wood-Engraver. He was the youngest of four sons of Abraham above-mentioned, and has undoubted claims to originality on copper, as the introducer of a style afterwards perfected by the great Engravers of the French School, Audran, Baudet, Picart, and De Poilly.

H. Grotius.

A learned antiquarian Work by Hubert Grotius, (Art. 40.) of which Papillon possessed the first volume on Roman antiquities, contains, he says, a portrait of Hubert in the frontispiece, outlined similarly to the above. *Le trait est gravé à l'eau forte et la planche de rentrée en bois.* The same mode of execution is also adopted by Hubert for representing one hundred and forty-one medals of the different Roman Emperors. Papillon further states himself to be the possessor of a "Death of Lucretia," similarly performed, and bearing the date 1612, by *Paul Moreelze*, a distinguished Painter of Utrecht; and particularizes two amateurs and collectors of great celebrity in his day, M. Crozat and the *Count Caylus*; the former as having patronized and the latter as having practised this style of Compound Chalcography.* A French artist named *Paul Pontius Antoine Robert*, born at Paris about 1680, is mentioned by M. Bartsch as having etched several of the subjects which were executed in chiaroscuro by Nicolas and Vincent le Sueur (Art. 29. 31.) for the Crozat collection.

P. Moreelze.

Caylus.

Robert.

We may here subjoin the name of an ingenious Englishman, *Edward Kirkall*, (Art. 30.) who invented a mode of producing Prints in chiaroscuro by a mixture of etching and mezzotinto (Art. 62.) with the assistance of wooden cuts. The outline is boldly etched; the dark shadows are then worked on the copper with the graining tool, and the remaining process for producing demitints and for leaving the high lights is effected by separate blocks of wood.

Kirkall.

Prints from *raised work* on metal.

(47.) Being drawn once more to the subject of Engraving in relievo, we may be excused for introducing to the reader in this place a method practised by Mr. Lizars, of executing Engravings on metal so as that the lines of the work may, like those of type or of wood-cuts, form a raised surface.† This invention is so recent, as to require every indulgence from criticism, but it promises the means of combining the facilities of copper-plate with the durability of Engravings on wood.

* *Traité de la Gravure*, &c. vol. i. p. 396, 397. 400. 406.

† On a well-polished plate of copper (a preferable material to lead, pewter, type-metal, zinc, or brass, all of which have been tried) the drawing for the intended Print is made with a pen or hair pencil dipped in turpentine varnish coloured with lamp-black. Let this drawing of varnish be perfectly dry, and then proceed as in etching. (See Note BB.) The acid, poured upon the plate, will remove by its action on the uncovered parts of the copper all the interstices intended to be hollowed out between the lines of the drawing. In dark shading, where the lines are numerous and closely drawn, and the interstices few, this operation is performed without much risk of accident; but if the distance be considerable between the lines, it will be necessary, by a subsequent process, to employ the burin for cutting away the parts which surround them in order to prevent the dabber of the pressman from reaching the bottom, so as to charge it with ink and cause a blurred impression.

The ingenious contriver of this method recommends from experience that the common etching ground be, in the first instance, laid upon the copper; next that with an etching needle the first course of lines, or rather *interstices*, be removed; and, lastly, that over these the artist should put in his cross lines with the varnish. In such parts as require more freedom of touch the etching ground may be scraped away, and the drawing completed with the varnish.

Chalcography

Work of the Burin combined with that of the Etching Needle and Dry Point.

Burin combined with the etching needle and dry point.

(48.) But the sort of compound process, which in modern Art has gained most admirers, and has engaged the attention of the most considerable number of artists, requires next to be remarked upon; namely, the conjunction of etching with the work of the graver and of the dry point. (Art. 33. 44. 45.) According to this combined arrangement, each of these three modes of Engraving is made available, on one and the same copper-plate, to the representation of such objects as each is best adapted to delineate.*

(49.) To give more than a very select number of the artists who have been distinguished in the compound process now under our consideration would be to transcribe a whole Dictionary of graphic biography. We shall therefore limit our attention to comparatively a few in each of the European Countries before mentioned, and we propose to divide works of this kind into two classes.

Two classes of *compound Chalcography.*

1. Works in which *etching is merely a basis* or initiatory operation, and of which the remainder is completed, partly with the dry point, but chiefly with the graving tool: so that a copper-plate thus executed, possesses all the strength and harmony of an Engraving performed from its commencement with the burin alone. This style of the Art arose only in the beginning of the XVIIth Century.

2. Works in which *etching predominates*, but in which the Plates, after the process of etching, are more or less retouched and strengthened for pictorial effect by the graving tool and dry point. These Prints resemble drawings of which the merit depends on a proper management of light and shade.† They have sometimes

* A peculiar excellence of etching consists in its admirable expression of the picturesque in ancient or ruined buildings, in cottages, in rocks, and uneven ground, in the broken trunks, and particularly the foliage of trees, and in its general aptness for portraying vegetation. To characterise such objects, an agreeable roughness, when the acid is permitted to bite freely, is produced; and on the other hand, any required degree of smoothness is equally attainable by reason of the uniform action of the corroding liquid when left to bite the lines evenly and alike. (Art. 19.) The hand also of the operator has the inestimable advantage of applying his etching needle with the same freedom as in drawing with a black-lead pencil.

Etching alone, however, would be feeble and often incorrect. Wherever precision and strength are required the burin is indispensable; and the latter instrument (more especially in portraits, where the most minute parts must be faithfully given) is employed for re-entering the etched lines to give them the requisite sharpness. For engraving also such lines as swell by insensible gradation from a fine extremity to greater thickness, or *vice versâ*, although several etching needles differing in breadth may, one after the other, be used for re-entering the same line; or, although the instrument which Bosse terms an *échoppe* (see Plate i.) may be applied; yet no line of this kind can ever equal in clearness, exactness, and firmness a line cut at one sweep with the graving tool. The now universal practice, therefore, of modern Chalcographers, whether executing the largest or the most minute Works, is first to bring their Plates to a state of considerable forwardness, and to produce all the producible effect by means of *etching:* then, *with the graver*, to harmonize the different masses, and *with the dry point* to tint the lights and more delicate portions of the Engraving. So that Plates professedly wrought by the burin are scarcely to be found without some assistance from etching: while, on the other hand, few copper-plates under the title of etchings are committed to the press without some touches from the graver and dry point.

† *Anleitung*, &c. vol. i sec. 445. M. Bartsch has included this class of Prints among his examples of etching; but as in most of them considerable use of the graving tool or burin is introduced, we must, to be consistent, include them among specimens of Compound Chalcography.

Engraving. been classed with etchings. Their execution, however, advances a degree further than in the Prints we have just mentioned, (Art. 45.) by Rode, Guido, Cantarini, Testa, and others: and which latter may be compared to slight sketches where no peculiar effect from shading is expected or intended.

(50.) Respecting the first of these classes of the Art it is to be remarked, that although such a complete union in the operations of the graver with those of the etching needle was not accomplished in the XVIth Century, as was afterwards effected by Gerard Audran, and the French School, towards the end of the XVIIth; yet that the attempt was made long before, and not altogether unsuccessfully in Italy: and as the invention of etching was at first introduced only in the light of a substitute for the work of the burin, no doubt the burinist would more often deem it expedient to retouch his etching with the graving tool, than afterwards; when the peculiar virtues of each process came to be better understood and appreciated. We have already included *Agostino Caracci* (Art. 37.) among the most eminent burinists of Italy. Three others of the same name and family, *Ludovico*, born A. D. 1555, the celebrated founder of their School in Bologna, (PAINTING, p. 476.) with his cousins, *Annibale* and *Francesco*, (but more particularly Annibale,) younger brothers of Agostino, have left us several free and masterly specimens of historical Engraving, partly etched, and then finished with the graver. Their contemporary *Federico Baroccio*, of the Roman School, (PAINTING, p. 474.) was another *peintre graveur* whose Engravings, not, certainly, examples of delicate execution, possess the yet higher claims of correct design and beautiful expression. He died in 1612. An exact account of the Prints by these artists is given in M. Bartsch's seventeenth and eighteenth volumes.

Italy. *First class of compound Engraving.*

The Caracci.

Baroccio.

We must here, as before, considerably abridge the materials, which with some care we had collected: and in order to preserve our prescribed bounds, can only give in nearly chronological order a few of the names which belong to the succeeding centuries. Such remarks as our space affords will be found occasionally in a note below.

Artists' Names.	Where born and when.	Died at	A. D.
Pietro del Po	Palermo .. 1610	Naples	1692
*Pietro Testa**	Lucca 1611	Drowned in the Tiber	1650
Carlo Cesio†	Antroduco. 1626		1686
Etchers. *Francesco Aquila*	Palermo.. 1676		
Etchers. *Pietro Aquila*‡	settled with his brother at Rome about 1700		

* *Del Po* and *Testa* were pupils of Domenichino. Engravers of some celebrity, the former after his master, as well as after the Caracci and Nic. Poussin: the latter after his own designs. Testa studied some time under Pietro da Cortona. (See Roman School, PAINTING, p. 474.) The Works of Testa have been sometimes classed and compared with those of Tempesta, (Art. 45. 51.) but those Prints to which we now allude are more finished, and possess superior execution. For an account of Testa as well as of Del Po, see vol xx. of the *Peintre Graveur*.

† *Cesio*, another disciple of P. da Cortona, is recorded by M. Bartsch (*Peintre Graveur*, vol. xxi. p. 101.) as the Engraver of ninety pieces, (sixty-four of them subjects from the Farnese Gallery,) *qui offrent un dessein pur et ferme, ainsi qu'une pointe légère mêlée d'ouvrage de burin très-intelligente.*

‡ *Pietro* was an Ecclesiastic and a Monk, but found leisure in his seclusion to become, according to Baldinucci, a respectable Painter. As an Engraver he is better known. His drawing is extremely correct: and his Prints, the best of which are after the Caracci, possess admirable boldness and freedom. Each of the brothers engraved several Plates after P. da Cortona, Ciro Ferri, and Carlo Maratti. (PAINTING, p. 474.) and Pietro was engaged with Cesare Fantelli in a set of fifty-six Prints from the series of Pictures in the Vatican called "Raffaelle's Bible." The first thirty-six are by Fantelli, but are much inferior to the remainder from the hand of Pietro Aquila.

Artists' Names.	Where born and when.	Died at	A. D.
Cesare Fantelli	Florence 1660	Rome	1752
*Carlo Gregori**	Florence 1719		
Giacomo Frey†	Lucerne 1681	Rome	1752
Giuseppe Wagner‡	.... Thalendorf.... 1706		
Domenico Cunego§	.... Verona 1727		1800
Aloysis } *Giuseppe* }	his sons..... Verona	1757 / 1760	
Francesco Bartolozzi‖	.. Florence..... 1730	Lisbon	1812
Giovanni Volpato	.....Bassano, about 1738		1800
Raphael Morghen	.....Naples 1755		

Chalcography

(51.) Our second class includes a host too numerous for detail. A number of Painters in the different Schools of Italy have been distinguished in this class as etchers. Most of them will be found in the sixteenth and five following volumes of M. Bartsch's *Peintre Graveur*. *Francesco Mazzuoli*, or *Parmegiano*, (PAINTING, p. 477.) whom we have remarked upon as the introducer of etching into Italy, claims to be first mentioned. He was born A. D. 1503, at Parma, as his popular name imports. We next find ourselves among the Italian artists whom the munificent Francis I. invited to Fontainebleau. (PAINTING, p. 490. French School.) *Lucas Penni*, (a fellow-pupil with his brother Il Fattore under Raffaelle,)

Second class in Italy. Parmegiano.

L. Penni.

* A Work entitled *Museum Florentinum*, portraying, as its name imports, the treasures of Art at Florence, called forth the graphic talents of several distinguished artists, and among others of *Carlo Gregori*, a pupil of the celebrated Giacomo Frey, above named. Carlo left a son, *Ferdinando*, born at Florence in 1743, who studied at Paris in the School of J. G. Wille, (Art. 39.) and has engraved several Plates of considerable merit.

† *Frey* has been generally put down among the German School, although he must have passed his life at Rome from the age of twenty-two, until his death at the age of seventy-one; and although he was regarded as one of the ablest masters in that city. He left his native Swisserland to become a pupil at Rome, for some time of Westerhout, but afterwards of Carlo Maratti, under whom he was a fellow-student with Van Audenaerde, a future ornament of the Flemish School. Maratti is said to have remarked to his pupils, that a common fault of historical Engravers was to cause hardness in their contours by too frequent use of the burin; that Dorigny in his best Prints had escaped this error; and that by familiarizing their hands to the etching point, they would find it to exceed the graver in delineation of picturesque objects. By the advice of their master, Audenaerde and Frey pursued the same style of Engraving, but Frey with so superior success, as to be sometimes remarked upon as the Gerard Audran of Italy. Raffaelle, Guido, Domenichino, P. da Cortona, and Maratti are the Painters after whom the principal Engravings are executed by this correct and tasteful draughtsman, as well as perfect master of harmonious effect. Few Prints approach nearer to the style of their originals. Good impressions are extremely rare. His son and publisher *Philip* is said to have retouched most unskilfully the worn Plates, and to have destroyed all the harmonious sweetness and delicacy of Giacomo.

‡ This equally celebrated native of Swisserland established himself at Venice. His Works, like those of Audran (Art. 56.) and Frey, show how admirable is the union, judiciously and tastefully made, of etching with the work of the burin and dry point. From his School at Venice have come forth some of the ablest moderns, *Bartolozzi*, *Flipart*, *Berardi*, *Capellani*, and others.

§ Cunego, with Capellani and others, worked for the *Scuola Italica* of Mr. Hamilton. He afterwards came to England, where he engraved some Plates for the Boydell collection.

‖ Dr. Johnson's Epitaph on the Poet Goldsmith may be parodied with strict truth in reference to the indefatigable genius of *Bartolozzi*,—that he left scarcely any species of Engraving "untouched or unadorned by his hand;" but it is to his Works in the class of Art we now consider (such as his "Clytie repulsing the God of Love," after A. Caracci) that he is indebted for his settled reputation. His pupil *Volpato*, whom he taught at Venice, has distinguished himself by several Prints from Raffaelle not unworthy of such an instructor; and from Volpato the same instructions have descended with undiminished force to *Raphael Morghen*, the disciple and son-in-law of the latter.

Engraving. *Leon Davent*, and *Domenico del Barbiere* were of that number. The Prints of these Engravers, chiefly after the Works of Il Rosso, Niccolo dell' Abati, and Primaticcio, are the more valuable ever since the barbarous and wanton demolition, in 1738, of the magnificent frescos at Fontainebleau, executed by Dell' Abati, (A. D. 1552, *et seq.*) from the designs of Primaticcio *Antonio Fantuzzi* of Viterbo, a pupil of Primaticcio, has likewise left some bold and scarce etchings from the Works of that master, as well as of Il Rosso. *Giovanni Batista Franco** was a celebrated contemporary of these artists.

Fantuzzi.

G. B. Franco.

In the Venetian School, the etchings by *Paolo Caglliari*, (PAINTING, p. 476.) known better as *Paolo Veronese*; also by *Odoardo Fialetti*, of Bologna, a pupil of Tintoretto; and by *Giacopo Palma*, (born at Venice in 1544, and surnamed *Il Giovane*, to distinguish him from the elder Palma, his great uncle,) are in great esteem among the curious.

P Veronese.

Fialetti.

G. Palma.

Artists' Names.	Where born and when.	Died at	A. D.
Gio. Bat. D'Angeli, alias Del Moro†	Verona 1512		
Antonio Tempesta‡	Florence 1555		
Batista Vicentino, flourished at Venice about A. D. 1540.			
Remigio Cantagallina§	Florence 1582		
Josef Ribera, alias Il Spagnoletto‖	Xativa in Valencia....1589	Naples	1656
Giov. Fran Barbieri, alias Guercino¶	Cento. 1590		1666
*Giacomo Callot***	Nancy 1593		1635

Other artists.

* *Franco* formed his style of Paioting upon the study of Michel Angelo Buonaroti, and though not successful as a colourist, is considered by Lanzi as one of the ablest examples of Florentine Art. His Plates, to the number of about ninety, are carefully divided by M Bartsch into four sections, all of which he considers to have been more or less etched: the first section very little; the three last evidently so; and in the fourth he considers the burin only applied to lengthen out into fine points, those lines which the aquafortis would necessarily leave in a blunted state.

† Styled *Del Moro*, from having been the scholar of El Moro. (Francesco Torbido.) D'Angeli was in Painting a successful competitor of Paolo Veronese. His slight and spirited etchings are remarkable for delicate and masterly drawing in the extremities of the figure. In conjunction with Batista Vicentino, he engraved fifty landscapes, chiefly after Titian. His son *Marco* is likewise chronicled by M. Bartsch among the etchers.

‡ A Painter of battle-pieces, whose inventive powers and great fertility are manifested in his numerous etchings, consisting of more than eighteen hundred.

§ Pupil of the Caracci, though not distinguished as a Painter, and instructed in Engraving by *Giulio Parigi*, jointly with whom he engraved some plates of opera scenes. The School of *Canta Gallina* at Florence became celebrated, as Gori relates, for producing *Stefano della Bella*, and *Jacques* or *Giacomo Callot*.

‖ *Spagnoletto*, and his sometime pupil *Salvator Rosa*, (PAINTING, p. 478.) gave celebrity to Naples in this Art. The former has left about twenty etchings, producing, in a bold and free manner, the finest effect. The latter has left about ninety, of which the masterly chiaroscuro and characteristic expression, particularly in the heads of his figures, are admirable.

¶ A few etchings from the hand of this Painter, one of the lights of Bologna, (PAINTING, p. 477.) show great taste and spirit.

** His Prints amount to upwards of fifteen hundred. *Callot* is most successful where he has confined himself to small figures. He used for his Plates the hard varnish, which soon after his time was abndoned for the modern more convenient material. (Note (BB.) at the end of ENGRAVING.) His powers of invention were extraordinary. His practice was to make several designs for a subject before he could engrave it to his satisfaction. Watelet declares that he saw four different drawings by Callot, for his celebrated Plate of the "Temptations of St. Authony." A courageous reply made to Richelieu, the powerful and resentful Minister of Louis XIII., is recorded of this Engraver, after he had been employed sometime at Paris to engrave the principal sieges and battles of the French, particularly those of Rochelle and Rhé. On being pressed by threats, after he had made several requests to be excused, to furnish a drawing, and engrave a similar Plate of the siege of Nancy, his native city, taken by the French in 1631, he replied, "I will sooner cut off my right hand, than employ it in any act disrespectful to my Country, or disloyal to my Prince;" alluding to the Duke of Lorraine, whose dominions were not then formally appended to France, but had been overrun, together with Nancy the Capital, by the French armies during Richelieu's darling contests with Austria. Louis, more generous than his Minister, was so struck with this patriotic answer, that he offered Callot a handsome pension, which he nobly declined. Notwithstanding this plain refusal of Callot himself to be deemed a Frenchman, his chroniclers have enrolled him among French Engravers, together with his inimitable fellow-countryman, Claude Gelée, or *Claude Lorraine*, who also passed his best days in Italy, and died at Rome in 1682, before his native Province was ceded to France. (PAINTING, p. 491.)

Artists' Names.	Where born and when.	Died at	A. D.
Claude Gelée, alias Claude Lorraine*	Champagne in Lorraine 1600		1682
Gio. Fran. Grimaldi†	Bologna....1606		1680
Pietro Fran. Mola‡	Caldra 1609	Rome	1665
Stefano della Bella§	Florence 1610		1664
Gaspar Duchet, alias Gaspar Poussin‖	Rome....1613	Rome	1675
Salvator Rosa	Naples 1615	Rome	1673
Giov. Benedetto Castiglione.	Genoa....1616		1670
Bartolomeo Biscaino¶	Genoa 1632	Of the plague	1657
Pietro Sante Bartoli, called by some Il Perugino**	Perugia....1635		
Marco Ricci	Belluno 1680	Venice	1730
Giov. Batista Tiepolo††	Venice 1697	Madrid	1770
Francesco Londinio	Milan....1723		
Benigno Bossi‡‡	Milan....1727		

Chalcography.

* *Claude* etched several landscapes and seaports, to the number of about twenty-eight Plates. They are, in general, good compositions, but are indifferently executed.

† Called *Il Bolognese*, from his native city; an admirable Painter and Etcher of historical landscape.

‡ This distinguished Painter of History, and more particularly of landscape has left some spirited etchings on historical subjects. He settled at Rome.

§ His Plates exceed fourteen hundred. He imitated at first the style of Callot, his fellow-student under Cantagallina, but abandoned it for another of his own, of which a brilliant and clear execution, as well as tasteful and spirited design, are the general characteristics.

‖ He acquired the appellation of *Poussin* from the marriage of his sister with Nicolas Poussin. The few slight etchings from this great master of landscape are precious to every collector. His younger brother, *John Duchet*, devoted himself to Engraving, but not with much success.

¶ *Biscaino* and *Castiglione* were both eminent Etchers; they bear some resemblance in style to each other. Castiglione, in particular, approaches to the magical chiaroscuro of Rembrandt. He was at one time apprenticed to Vandyke, during the stay of that great master at Genoa. The etchings of Biscaino, who unfortunately died young, are full of intelligence and graceful expression.

** He quitted Painting for Engraving. His Plates are numerous, are chiefly etched, and are distinguished for dexterous and masterly handling of the point.

†† *Ricci* and *Tiepolo* were eminent in the Venetian School. The former, a nephew and pupil of Sebastiano Ricci, (PAINTING, p. 476.) etching landscape from his own designs. The latter, together with his son *Giovanni Domenico* and grandson *Lorenzo*, etched as well as painted with much taste and spirit. The frescos by the elder Tiepolo, in the new Palace at Madrid, are splendid specimens of his powers as a machinist, and even gave alarm to Mengs, the popular Court painter.

‡‡ Of these contemporary Milanese artists, the former, *Londinio*, a Painter of history and landscape, has etched about seventy landscapes in a very pleasing style. The latter quitted Painting by the advice of Mengs, and devoted himself to Engraving. Under the patronage of the Duke of Parma, *Bossi* performed several spirited Works, some of which entitle him to rank among the preceding class of Engravers.

(52.) Turning next to GERMANY, for a first class of Chalcographers (Art. 49.) in this mixed process, we find the name of *John Frederic Bause*, in a list by M. Bartsch, (*Anleitung*, &c. vol. i. p. 223.) next to the name of J. Frey, whom we have already mentioned, (Art. 50.) Bause was born at Halle in Saxony, A. D. 1738. He

Germany. First class in compound Chalcography. Bause.

Engraving. is said to have been a self-taught artist, and to have acquainted himself with the Art, by a careful study of the works of J. G. Wille. (Art. 39 and 41.) His Prints have considerable merit, and evince both in portrait, and in several historical Plates, a complete and firm command of the graver. Earlier combiners, however, of the burin with the etching point in Germany might be named, such as *Matthew Kusell*, born at Augsburg, A. D. 1622; and *John Ulric Kraus*, of the same city, born in 1645, a pupil of Melchior Roos, (Art. 53.) whose daughter he married. He completed three sets of Plates for three successive editions of the Bible, and followed with some success the style of Sebastien le Clerc. (Art. 56.)

M. Kusell. Kraus.

Guttenburg. *Charles Guttenburg* was a pupil of Wille at Paris, and has produced several Plates in the style of his master. He was born at Nuremburg in 1744. He engraved for the Work of the Abbé St. Non, entitled *Voyage Pittoresque du Royaume de Naples*. There is a neat copy by him of Woollet's celebrated Print, the "Death of General Wolfe." Another artist, one year younger than Guttenburg, and who adopted the manner of Woollet, was *Frederic Gmelin*, a native of Badenweiler on the Rhine, in the neighbourhood of Fribourg. He is distinguished by M. Bartsch as having engraved landscapes after Claude Lorraine.

Gmelin.

The Preislers. The family of *Preisler*, natives of Nuremburg, have been industrious in the Art. Three brothers of this name, born between A. D. 1698 and 1716, sons of an obscure Painter, became respectable artists, but particularly the youngest of the three, *John Martin Preisler*, who in 1739 visited Paris and received instructions from Geo. Fred. Schmidt. He afterwards became Engraver to the King of Denmark, and member of the Academy at Copenhagen. His son *John George* was a creditable pupil of Wille, and in 1787 a member of the Academy of Paris. *John Frederick Leybold*, (born at Stutgard in 1756,) Professor of Engraving in the Royal Academy of Vienna, is celebrated for a "Death of Marcus Antonius" after Pitz.

Leybold.

Second class in compound Chalcography. (53.) For the second class of German artists in this way, we have already named some examples of early etching. (See Note (U.) and Note (W.) at the end of ENGRAVING.) The few etchings of Albert Durer are not equal to his Engravings with the burin only. (Art. 39.) In the city of Frankfort arose the family of *Merian*,* whose contributions are highly celebrated and valuable in this class of Art. *Rosa da Tivoli*, born at Frankfort in 1655, whose real name was *Philip Roos*, found leisure from painting to contribute some rare specimens. The family of *Roos* were admirable etchers.* Among celebrated moderns we have mentioned the name of Sandrart. (Art. 39.) That family was also eminent in this department.† Their contemporary at Nuremburg, *John James Ermels*, imitated as a Painter the style of John Both, (PAINTING, p. 484,) and etched very tastefully a few landscapes.

The Merians.

Chalcography.

Rosa da Tivoli.

Ermels.

The family of *Kusell* at Augsburg (Art 52.) has been creditable to the Art.‡ *Jonas Umbach*, of the same date and birthplace, ranks with some in considerable estimation. An eminent contemporary Painter, *John Elias Ridinger*, who established himself in that city,§ has left several unrivalled etchings of wild animals. *John William Maur*|| of Strasburg was another Painter of some eminence whose Engravings deserve attention.

The Kusells. Umbach. Ridinger. Maur.

We have had occasion to remark the progress of Dresden in the Fine Arts. *Samuel Botschild* and *John Alexander Thiele* were Saxon artists, patronised by the Court of Dresden at the end of the XVIIth and towards the middle of the XVIIIth Century. *Dietrich*, a pupil of Thiele, was another Saxon who has done honour to the same patronage.¶

Botschild. Thiele. Dietrich.

---

* *Matthew Merian the elder* was born at Basle in 1593. He married the daughter of his eminent graphic instructor Theodore de Bry or Brie, and had for his disciple the celebrated Hollar, whose talents afterwards promoted and advanced, if they did not rather originate, our English School. His typographical Plates, like those of his pupil, are exceedingly valuable and faithful representations. He died in 1651. *Matthew Merian the younger*, his son, was a respectable Painter, and studied successively, it is said, under Sandrart, Rubens, and Vandyke. He engraved the portrait of Dr. Donne, prefixed to an edition, in 1640, of that author's Sermons. *Gaspar Merian*, a younger son, also engraved. But *Maria Sybilla*, their sister, was the most eminent of the family. To gratify her enthusiasm as a naturalist, she undertook a voyage to Surinam, and returned (but not until forced by injury to her health) with numerous drawings and specimens of insects and plants peculiar to that climate. Of these she published an account at Amsterdam in 1705. Previously to this remarkable voyage, she had published at Nuremburg, in 1679, her interesting history of the insects of Europe, accompanied with Plates from her designs, and partly etched by herself. Two large volumes of the drawings for these Works are preserved in our British Museum. She engaged her two daughters, who, like herself, were admirable flower-painters, in the same labours, and they contributed after her death to complete them.

* *Philip Roos*, during his term of study in Italy, kept a kind of menagerie of animals at Tivoli for the purpose of drawing them with the greater correctness; hence his Italian sobriquet. He was a judicious and tasteful Painter of landscape and animals. His few etchings of pastoral subjects are extremely rare. He found a liberal patron in the Landgrave of Hesse, and died at Rome in 1705. His father, *John Henry Roos*, was eminent in the same walks of the Art. From anxiety to rescue some valuables from fire out of his house at Frankfort, Henry fell a victim to the flames. *Theodore* was another son whose etchings are as beautiful as they are scarce. *John Melchior*, a younger son, has left one etching of which M. Bartsch praises *la manière savante*.

† *John James Sandrart* (a great nephew of the Painter and Antiquary) contributed, together with his sister *Susanna Maria*, to embellish with many spirited etchings the publications of their learned relative Joachim. John James died at Nuremburg in 1708.

‡ *Melchior Kusell*, born at Augsburg A. D. 1622, was a pupil of Matthew Merian. About one hundred and forty-eight etchings, representing Italian seaports and views, &c., together with a variety of subjects after William Baur from the "Life of Christ," comprise the chief of his performances.

§ His ability has been seldom surpassed in the numerous excellent etchings which he has left, chiefly of wild animals and huntings, most appropriately grouped in the wildest forest scenery of his Country.

|| *Maur*, who had passed some years at Rome under the patronage of the Prince Giustiniani and the Duke of Bracciano, was taken into the employment of the Emperor Ferdinand III. at Venice, in whose service he died in 1740. His Plates from the *Metamorphoses* of Ovid are respectable performances, and much resemble the manner of Callot.

¶ *Botschild* was born at Sangerhausen in 1640. His reputation gained him the appointment of Painter to the Court of Dresden, and Keeper of the Electoral Gallery. He founded in that city an Academy for the young artists of his Country. His etchings on historical and emblematical subjects are from his own designs. His Countryman *Thiele* composed landscapes from the charmingly picturesque banks of the Sala and the Elbe. Many etchings of these views, dated from 1726 to 1743, (the latest are the best,) remain from the hand of Thiele. *Dietrich* was born at Weimar in 1712, and in 1742, under the patronage of the Court of Dresden, visited Italy, where he studied some time at Rome and Venice. His style, however, remained entirely German. He was an excellent colourist, and could imitate with surprising facility and address the Works of Rembrandt, Ostade, Polemberg, Salvator, &c. His etchings in imitation of these masters are in high esteem, to the number of about two hundred Prints, some of them extremely scarce, from the circumstance of his having frequently destroyed an

Engraving.

Crodowieki, Weirotter, Gessner, and others. *First class, in Flanders and Holland.*

Daniel Crodowieki, born at Dantzic in 1726, is one of the most remarkable moderns in this species of Engraving. *Weirotler*, *Gessner*, *Ferdinand* and *William Kobell*, and *Charles Weisbrod*, are also well-known names with which we here conclude our German list.*

(54.) From what we have recorded of the FLEMISH and DUTCH School, (see Art. 40. and PAINTING, p. 479, 482, &c.) our readers will anticipate (as a natural consequence of the indefatigable genius which presided in that numerous fraternity) no less industry and originality in this than in every other arena of pictorial ambition. In our first class, however, now to be considered, (Art. 49.) only two artists have drawn the attention of M. Bartsch, (*Anleitung, &c.*, vol. i. p. 228.) *Robert van Audenaerde* and *Arnold van Westerhout*.† Several others antecedent to them might be named.‡

Audenaerde. Westerhout.

In Flanders, the cities of Antwerp and Ghent produced some able Engravers whose talents as burinists gave them facility in this compound process. Antwerp gave birth, in 1610, to *William de Leeuw*, and in or about 1630 to *James Neefs*. Their Prints after Rubens, Vandyke, and other Painters of that School, are highly characteristic, though Neefs is occasionally mannered and rather extravagant, and De Leeuw sometimes coarse and inharmonious. Westerhout was of the same city, born in 1666. From Ghent, the birthplace of Van Audenaerde, came likewise *Francis Pilsen*, his pupil, born A. D. 1676.

Chalcography.

W. de Leeuw. Neefs.

Pilsen.

(55.) The second class in this species of mixed Chalcography is, as might be expected, much more numerous. M. Bartsch, however, particularizes only those in the ensuing list, of whom, with their principal disciples and followers, the reader will expect some mention.

Second class, in Flanders and Holland.

Artists' Name.	Where born and when.	Died at	A. D.
*Paul Rembrandt van Rhyn**	Near Leyden.....1606.	Amsterdam,	1674

Engraving (after taking a certain number of impressions) in order to use the same plate again.

* "*Crodowieki*," says M. Bartsch, "has been to Germany, what Gravelot, Eisen, and Nicolas Cochin have been to France, an admirable illustrator of printed Works. (*Anleitung, &c.*, vol. i. p. 200.) His peculiar merit lay in delineating character (even in very diminutive figures) through every variety and degree, whether of quietude or of emotion: and he is excellent, like Hogarth, in the choice and disposition of judicious accessories." M. Bartsch predicts also that his Works, like those of Hogarth, will command admiration long after changes in modes of dress (often a great essential towards marking character) shall have arisen to diminish popular interest. Crodowieki died in 1800.

Francis Edmund Weirotter of Inspruck exercised his etching point on the most picturesque and appropriate subjects with great harmony, beauty, and force. His figures are well designed and cleverly introduced. He died at Vienna in 1773, at the age of forty-three.

The poet *Gessner* was likewise a pleasing and very finished etcher of landscape. He etched for his celebrated Poem, the *Death of Abel*, several vignettes and ornamental pieces. One set by him of ten landscapes is dedicated to Watelet.

William Kobell was the son of *Ferdinand*, and was born at Manheim about A. D. 1766. Both have etched some most desirable Plates of landscape, but especially William, whose graphic productions have most successfully characterised the principal landscape-painters of the Dutch School.

Weisbrod, born at Hamburgh in 1754, was a pupil of Wille. The landscapes are very numerous from his hand, in the neat clear style of his master. He also engraved after Pynaker, Ad. Van de Velde, Ruysdael, &c. (PAINTING, p. 483, 484.) and assisted in some Plates for the Cabinets of Poullain, Choiseul, and Prasin.

† *Audenaerde* has been already remarked upon as a fellow-student at Rome with James Frey (Art. 50.) under Carlo Maratti. He became, by the instructions of that master, a respectable Painter of History; and painted several Pictures for the Churches and Convents of Ghent, his native city. He died in 1713. His Works as an Engraver are chiefly after Maratti, and are unequal in their execution. Those in which he accompanies the graver with the etching point are decidedly his best. He was an admirable draughtsman, and has shown a perfect acquaintance with the human figure.

Westerhout, who pursued the same style of Engraving, is said to have sometimes worked with him on the same Plate. But, although Westerhout chiefly used the graver, he wants force, and fails of any powerful effect. He was a native of Antwerp, but established himself at Rome, where he engraved portraits and History as well from his own designs as from Works of Italian Painters, and died A. D. 1725.

‡ Without going back to *Lucas van Leyden*, the founder of the Art in Holland. (PAINTING, p. 480. and see Art. 40.) we might again mention *Peter Soutman* of Haerlem, the scholar of Rubens, (*Ibid.* p. 482. and Art 40.) and his pupils *Cornelius Visscher*, also of Haerlem, *Peter van Sompel* of Antwerp, and *Jonas Suyderhoef* of Leyden: together with their contemporaries at Haerlem, *Peter Holstein* and his son *Cornelius*, born at Haerlem about A. D. 1620; and *Theodore Matham*, about ten years earlier. *Abraham Conrad*, of somewhat later date, a successful imitator of Vostermanps, (Art. 40.) is eminent for some very fine portraits.

Other Dutchmen might be added, as *Henry Goltzius* of Mabrecht; (*Ibid.*) *Simon Frisius* of Lewarden in Friesland, born A. D. 1590, one of the first who brought etching to perfection; *Romeyn de Hooghe* (Art 55.) whose well-known Print of the deluge at Coeverden is well described by Mr. Gilpin; (*Essay on Prints*, p. 208.) and *Jacob Houbraken* of Dort, who with his father was established at Amsterdam. (Art. 40.) Amsterdam was the birthplace, in 1634, of *Abraham Blooteling*; in 1655 of *Solomon Savery*; and in 1670 of *Matthew Pool*; all of them eminent Engravers of this class. The same city, in the following century, gave birth to *John Punt* and *Jacob Vander Schley*.

* *Rembrandt Gerretz*, or Rembrandt *van Rhyn*, was so called from the house of his birth, where his father, a miller, resided on the banks of a canal supplied by the waters of the Rhine between Leyendorp and Hoerke near Leyden. We have already (PAINTING, p. 482.) invited attention to the merits and singularities of this great master of chiaroscuro. The engraved Works, according to M. Bartsch, of this extraordinary artist amount to more than three hundred and seventy pieces. Among these he distinguishes the "artist's own portrait with a sahre;" (his portraits of himself are twenty-seven in number;) the "Raising of Lazarus;" the "Hundred Guilders" Print already mentioned; (Art. 44.) the "Good Samaritan;" the "Skaters;" and about seventeen others. It may be affirmed, however, of his Engravings as well as of his Paintings, that his most admirable productions are portraits. In execution they are among the happiest efforts of the Art, and in characteristic expression are unrivalled. Among his numerous pupils, *John George van Vliet*, born at Delft in 1610, has left several Prints in the same style, which have been much sought after notwithstanding defective drawing and clumsy draperies. His practice was to etch his Plates with a very delicate point, and afterwards, by rebiting, and the use of the graver, to strengthen such parts as required. *John Lievens* of Leyden, a pupil of Rembrandt's reputed instructor. Peter Lastman, was no less celebrated as an Engraver than as a Painter of History. Among his portraits, to the number of about sixty, are some excellent compositions, executed in the style of Rembrandt, but somewhat coarsely, as Lievens made no use of the dry point. His "Raising of Lazarus" is thought a superior composition to Rembrandt's, and is equally well engraved. *Ferdinand Bol*, (PAINTING, p. 483.) born at Dort in 1610, having settled in early youth with his family at Amsterdam, attended there the School of Rembrandt. His etchings evince great merit, and most judicious management of light and shade, but want the playful airiness which belongs to the touches of Rembrandt. *Simon Vlieger*, a contemporary landscape-painter of Amsterdam, who taught the younger Vandevelde, (PAINTING, 484.) etched some spirited views, adopting the style of Rembrandt. *Solomon Koninck*, born in 1609 at Amsterdam, is another successful imitator, both on canvas and on copper, of his great contemporary He learned Painting under Nicholas Mojaert, but appears to have formed his style from an attentive study of the small Pictures by Rembrandt. His compositions are excellent, and are executed with all the richness and clearness of his prototype. Other pupils of Mojaert were likewise Etchers, *Jacob Vanderdoes the elder*, (*Peintre Graveur*, vol. iv. p. 189.) and the *elder Weeninx*, (*Ibid.* vol. i. p. 389. and see PAINTING, p. 484.) but in a different style. Their etched landscapes with cattle and animals have the masterly air of their painted Works. *Marc de Bye*, a disciple of Vanderdoes, followed his master with less celerity as a Painter than as the producer of some excellent etchings of animals after Paul Potter and Marc Gerard.

Engraving.

Artists' Names.	Where born and when.	Died at	A. D.
Adrian van Ostade,*	Lubeck ..... 1610.	.....	1685
Reiner Nooms, alias Reiner Zeeman,†	Amsterdam 1612		
Anthony Waterloo,‡	Utrecht or Amsterdam about..... 1618		
Hermann Swanevelt,§	Woerden 1620	Rome	1690
*Nicholas Berghem**	..Haerlem 1624	.....	1683
Paul Potter†	.....Enkhuysen...1625		1654
Carl du Jardin‖	.....Amsterdam ..1635	Venice	1678

Chatcography.

* (See PAINTING, p. 483.) *Ostade* merits a place next to Rembrandt for profound delineation of character, and of character really adapted to the scenes he portrays. His personages, like Rembrandt's, are drawn from the haunts of gross vulgarity; but are not made to act "high life below stairs," nor forced *pêle mêle*, like Rembrandt's, into the sublimer walks of Historic Painting. They retain, under Ostade's management, their proper station. His etchings, amounting to upwards of fifty, are in great and well-deserved estimation. *Cornelius Bega* and *Cornelius Dusart*, both of Haerlem, were disciples of A. van Ostade, and painted in the same style. By the former of the two we have about five and thirty excellent Plates of cottage interiors, boors regaling, &c.; and by the latter a number of similar etchings, also very spirited; together with a few Works in mezzotinto. (*Peintre Graveur*, tom. v. p. 221, 463.)

† *Renier Zeeman*, (seaman,) so styled for his sea pieces. His shipping and figures in these marine Paintings are admirably drawn and spiritedly touched. The same praise is due to his etchings, and we only lament that such minute correctness, as well as freedom of hand, should be confined to the monotony of Dutch portraiture.

‡ *Waterloo* is the glory of the Dutch School in this kind of Engraving. His Paintings are rare gems of Art, and their scarcity arises partly from his having engraved so much; and partly, it is said, from habits of intemperance, to which he fell a victim in the prime of life. His Works, as Mr. Gilpin justly remarks, do not display much variety, nor seem to have cost him much stretch of fancy. "He selects a few striking objects; a coppice, a corner of a forest, a winding road, or a straggling village is generally the extent of his view; nor does he always introduce an offskip. His composition is generally good, and his light often well distributed; but his chief merit lies in execution, in which he is a consummate master. Every object that he touches has the character of nature." His etchings consist of about one hundred and fifty views after designs of his own. (*Peintre Graveur*, vol. ii. p. 1.) No Works of graphic Art have perhaps been more instructive to artists than those of Waterloo. He combined with the utmost spirit and facility of handling a marked attention in the foliage of his trees and plants to their several species. In trees he is probably without a rival. "His only defect," observes the author of the *Catalogue of an Amateur*, "seems to be want of management in the chiaroscuro, as his lights are occasionally too scattered. Having bitten in his plates delicately, he never repeated this operation with the aquafortis, but by stopping out in some cases with a judgment peculiar to himself, he attained the required gradations; and in others, having suffered the aquafortis to bite equally, he arranged and perfected the harmony of his Plates, and added the strongest shadows with the burin. In consequence of this process, however, when his Plates began to wear, the delicate etching soon disappeared, leaving only the coarse work of the burin; and such impressions are improperly considered as retouched. Good impressions of his Works are scarce."

§ *Swanevelt*, like his master, Claude Lorraine, (PAINTING, p. 483–485.) was a diligent observer of nature and of Italian nature. His studious and solitary walks for this purpose among the ruins of Tivoli and Frescati procured him the name of *hermann* or hermit. He etched in the manner of Waterloo, but with less freedom. His trees, says Mr. Gilpin, bear no comparison with Waterloo's; but he adds another material point of difference in which Swanevelt is far superior, namely, dignity of design. Waterloo saw nature only with a Dutchman's eye, and seldom quitted the plain simplicity of a Flemish scene. But Swanevelt had imbibed ideas of grandeur and beauty from the classic fields, and skies, and mountains of Italy. His engraved Works consist of one hundred and fourteen pieces. *Il avoit une manière de graver*, observes M. Bartsch, *qui lui étoit particulière, et u exprimé les feuilles de ses urbres par un assemblage de petits traits horizontaux un peu courbés qui sont très propres à représenter la situation naturelle sur les branches. Il n'a tracé des contours plus déterminés que quand il en a eu besoin pour dégager les parties.* (*Peintre Graveur*, tom. ii. p. 250.) His pupil and brother-in-law, *James Rousseau*, (Art. 57.) a French refugee Protestant, dismissed for his *heresy* from the Academy of Paris, and expatriated on the Revocation of the Edict of Nantz, retired to Holland. Rousseau was a Painter of considerable merit, and made a visit from Holland to this Country at the invitation of the Duke of Montague, who employed him, in conjunction with Charles de la Fosse (PAINTING, p. 492.) and J. B. Monnoyer, (*Ibid.*) to decorate Montague House, now the British Museum. He afterwards painted landscapes for the Palace at Hampton Court. His Plates are not numerous, but are beautiful, and etched with great spirit. Another landscape-painter, whose trees are admirably managed, is *Adrian Vander Cabell*, born near the Hague in 1631. His subjects, like those of Swanevelt, are quite anti-Dutch or anti-Belgian, and his style has been thought sometimes to resemble Castiglione. (Art. 51.) and sometimes Salvator Rosa. (*Ibid.*) His figures are correctly drawn, and his animals touched with great spirit. In shipping and marine subjects he had been preceded by Zeeman, and in architectural by Nieulant, Breemberg, and others.

Nauwynx, born at Utrecht in 1620, may be noticed here. He was a landscape-painter in the style of Waterloo. His few etchings are charmingly picturesque and highly valued. Another follower of Waterloo in landscape was *John Hackaert* of Amsterdam, who, like Swanevelt and others, was not satisfied with the contracted scenery of Holland, but delighted in wild woods and mountain torrents. He visited the most romantic parts of Switzerland and Germany; and on one occasion, says M. Bartsch, was seized as a conjuror, and dragged before the chief magistrate at Zurich by some simple natives, who mistook the lines of his sketch-book for characters of magic. (*Peintre Graveur*, vol. iv. p. 77.)

* He was for some time instructed in Painting by the elder Weeninx, (PAINTING, p. 484–488.) but had previously been scholar of Van Goyan, under whom he obtained from his fellow pupils the nickname of *Berghem*. The story is, that his father on some occasion being angry with the youth, came to seek him at his master's, who, to screen the favourite pupil, called out to the others, "*berg hem*"—*hide him*. His etchings, to the number of fifty-three, (of which an account was published by Henry Winter at Amsterdam in 1767,) represent landscapes and cattle, with occasional figures in a style of more finished execution than is usual with Painters. *John* and *Andrew Both*, his contemporaries and rivals in landscape painting, have left several charming etchings of landscape. They were of Utrecht, and pupils of *Abraham Bloemart* in that city, already named as a Painter (PAINTING, p. 481.) and an Engraver in chiaroscuro, (Art. 46.) but who also etched a number of Plates with a bold and masterly point, some in imitation of pen and ink drawings.

Berghem had several meritorious pupils and followers. *Diri* (Theodoric or Roderic) *Maas* of Haerlem was his pupil, a Painter of some reputation, who in the reign of William III. visited England, and painted the "Battle of the Boyne" for the Earl of Portland. Maas etched with great spirit some few scarce Plates. *John Vander Meer* the younger (*Peintre Graveur*, vol. i. p. 229.) was one of the best scholars of Berghem. He painted landscapes with cattle in the style of his master; and a few beautiful but scarce etchings attest his ability in handling the point. *John Glauber*, (*Ibid.* vol. v. p. 377.) of German extraction, but born at Utrecht in 1646, was another *élève* of Berghem, and became afterwards celebrated at Amsterdam as the friend and coadjutor of *Gerard de Lairesse*, the Flemish Poussin; (PAINTING, p. 484.) the former painted the highest order of landscape, which the latter adorned with classic figures. Both Glauber and Lairesse have produced several interesting etchings, in which each illustrates his own kind of composition. Among the happiest graphic translators of Nicholas Berghem, Mr. Gilpin distinguishes *John Visscher*, younger brother of Cornelius, (Art. 40.) and Danker Dankerts of Antwerp. But the ablest of Berghem's scholars was *Karel du Jardin*, hereafter mentioned.

† (PAINTING, p. 484.) *Paul Potter*'s indefatigable devotedness to his Art overpowered a naturally feeble constitution, and carried him off at the age of only twenty-nine. His etchings are greatly admired for their execution, and, in general, for their correctness. Mr. Gilpin praises his cows and horses, but regards his sheep as indifferently drawn and inaccurately characterised. *John le Ducq*, who studied Painting under him, and pursued for some time very successfully his style, has left some good etchings: in particular eight Prints of dogs, spiritedly drawn and neatly executed. (*Peintre Graveur*, vol. i. p. 197.)

‖ (PAINTING, *Ibid.*) The well-known etchings by *Du Jardin*, to the number of fifty-two, with figures and animals, show the same master hand as his admirable Pictures. His taste was decidedly

Engraving.

Artists' Name.	Where born and when.
*Romeyn de Hooghe**	At the Hague about 1638.

The Prints of the two first of the above-named artists portray similar subjects to those of their Paintings. (PAINTING, p. 482, 483.) The remaining number excelled in Prints of landscape, with animals, trees, figures, buildings, &c., or in marine pieces and seaports with shipping and appropriate accessories. We ought to add that among Painters and Etchers of architectural ruins and historical landscape *William Van Nieulant; Paul Bril*, born at Antwerp in 1584; *Bart. Breemberg*, born at Utrecht 1620; and *Bonaventure van Overbeck*, a supposed scholar of Lairesse, born at Amsterdam in 1660, deserve a distinguished place in the list.

France. Compound Chalcography.

(56.) The FRENCH School in this department is distinguished by many eminent names. The encouragement, indeed, which the Court of France in the XVIIth and following Century bestowed on graphic talent has been well rewarded. A prejudice, however, prevailed among French burinists against etching; and they seem to have surveyed its progress with a jealousy that retarded its introduction into the higher walk of Art, and prevented their deriving advantage from the powerful helps peculiar to the etching point. Several Works of Chaveau, for example, one of the best handlers of the French graver at the most brilliant part of the period alluded to, exhibit the utmost dexterity in the use of his favourite instrument; but would have attained a far superior effect, and have risen to a much more faithful representation of the original Pictures, had he condescended to introduce etching in that portion of his Plates for which it is best adapted.

Chalcography.

In the following lists, as well as in our former columns, the reader will perceive how well the Parisian atmosphere* was for a long period suited to the cultivation and progress of this difficult and laborious Art. The best Engravers of France were either born at Paris or at Paris they settled, and at Paris they died. To begin with the first class. (Art. 49.)

First class in France.

Artists' Names.	Where born and when.	Died at	A. D.
Etienne Baudet†	Paris ... 1598	Paris ...	1691
François Chaveau‡	Paris ... 1618	Paris ...	1676
Gabriel Perelle	Paris about ... 1620		
Pierre Landry§	Paris about ... 1630		
Guillaume Château‖	Orleans ... 1633	Paris ...	1683
Claudine B. Stella¶	Lyons ... 1634	Paris ...	1697
Guillaume Vallet	Paris ... 1634	Paris ...	1704
*Sebastien le Clerc***	Metz ... 1637	Paris ...	1714

more Italian than Dutch. To the truth and finish of Paul Potter he adds the graces of a more cultivated imagination. Mr. Gilpin (*Essay on Prints*, p. 132.) institutes a comparison between Du Jardin and *Abraham Hondius*, his contemporary of Rotterdam, and contrasts the sublimely savage and furious animation of the hunting pieces etched by the latter artist with the Arcadian quietness, the refined and pastoral repose of Du Jardin. Hondius, like *John Fyt* of Antwerp, was an excellent Painter of animals. Fyt also etched a few Plates of animals drawn with his accustomed spirit. Antwerp had given birth about fifty years before, in the preceding century, A. D. 1579, to *Francis Snyders*, an eminent Painter of similar subjects, (PAINTING, p. 482.) whose etchings about sixteen in number, are very interesting specimens in this class. A few etchings likewise of animals by *Albert Cuyp* (PAINTING, *ibid.*) are preserved by the curious, as admirable examples of composition, drawing, and expression. *Peter de Laer*, (*Ibid.* p. 483.) styled *Bamboccio*, from his favourite subjects *bamboccciate*, such as fairs, festivals, masques, processions, &c., has executed some bold and masterly etchings of horses and other animals. With true feeling for the Art, Mr. Gilpin laments the want of suitable Engravings after the grand hunting subjects painted by Rubens.

* Already noticed in the preceding class, (Art. 54.) he claims a place together with his successful follower, *John Luyken*, (called the Callot of Holland,) among the best etchers of historical landscape. *Albert Van Everdingen* and *Francis de Neve* are worthy of the same rank. Everdingen was an admirable Painter of stormy and rocky scenery, to which talent the accident of his shipwreck on the coast of Norway, and detention for more than a year in that Country, seems to have contributed. He obtained the appellation of the Salvator Rosa of the North. His Prints of landscape, to the number of about one hundred, are fine compositions, but not all equally well executed. He is well known for a series of fifty-seven etchings, illustrating the "History of the Fox," a satirical Poem imputed to Henry Von Alkmaar, for an account of which see Roscoe's *German Novelists*, ed. 1826. *Ludolph Backhuysen*, a pupil of Everdingen, also painted sea storms with splendid success, and has left some Plates with views of shipping on the Y, a small arm of the sea near Amsterdam. He died in 1709. De Neve, the contemporary of Everdingen, was born at Antwerp in 1627, where he studied the Works of Rubens and Vandyke, and afterwards resided and studied some years at Rome. He painted and etched with great fertility of genius and fine taste. *Avec toute l'élégance*, says M. Bartsch, *du stile noble de l'école d'Italie*. His Prints consist of forty landscapes, into which fabulous characters are introduced. Of Luyken, born at Amsterdam A. D. 1649, it is observed that he resembles Callot rather in the infinite crowds of figures which cover his Prints than in the neatness or spirit of his etching point. But his Plates have great merit, though not equal to the master touches of De Hooghe. Among the Dutch imitators of Callot, *Peter Quast*, of the Hague, his contemporary, deserves creditable mention.

* Engraving seems at one time to have been a fashionable accomplishment at the Court of France. Pompadour, Louis XVth's Marchioness, amused herself with this Art, and executed several Plates after Boucher, Eisen, and others. She also engraved a set of sixty-three Prints after gems by Gay.

† The early works of *Baudet*, and of several others in this list, are executed with the burin only. In their future and more successful efforts they called in the assistance of the etching point. Baudet's former attempts seem in the style of Cornelius Bloemaert; (Art. 40.) his later productions, at his return to Paris from Rome, where he studied, bear a strong resemblance to the manner of *J. B. de Poilly*, of whom, however, he could not have been an imitator, as De Poilly must have been a child when Baudet's best Prints were well known.

‡ *Chaveau*, likewise, quitted the sole use of the graver to introduce the etching point. His Works betray haste, but are full of spirit and force. Nearly three thousand Prints are from his hand, chiefly for booksellers. His best are some small Plates in the style of Sebastien le Clerc. He had studied Painting under Laurent de la Hire, (PAINTING, p. 490.) and painted small Pictures in the style of that master.

Gabrielle Perelle ranks high among the landscape Engravers of France. His Works, in which he was assisted by his sons, *Adam* and *Nicolas*, are very numerous, both from designs of his own and from those of Paul Brill, Gaspar Poussin, Asselyn, and Silvestre. There is a satirical Print, by the Perelles, from a design of Richer, caricaturing the surrender of Arras to the French in 1642. The citizens had inscribed on their gates,

Quand les François prendront Arras
Les souris mangeront les chats.

Their enemies, however, took the place, and only erased the letter *p* from the inscription.

§ Some portraits by *Landry* have merit. He was much employed by booksellers.

‖ A pupil at Rome of J. F. Greuter. The Prints by *Château*, in which he introduced the point, are excellent. His early style resembles that of Bloemaert. He enjoyed till his death the patronage of Colbert at Paris. *Benoit Trajat*, born at Lyons in 1646, was a scholar of Château, whom he surpassed in freedom of touch, neatness, and mellowness, though not in other respects. Trajat settled at Rome.

¶ The Prints by this female artist, after the designs of her uncle and preceptor Jacques Stella, (PAINTING, p. 490.) and of his friend Nicholas Poussin, are very fine. Probably no Engravings after Poussin have been more successful. Her uncle *Jacques*, a Painter, highly patronized by Richelieu, has left some etchings. Her sisters, *Antoinette* and *Françoise*, were likewise excellent etchers.

** This is another native of Lorraine, whose Works, like those of his fellow-countryman Callot, are of great *numerical* extent and deserved celebrity. Nearly three thousand Plates are from the hand of *Le Clerc*. But then, as Mr. Gilpin observes, his limits seldom exceed six inches; and within these limits he can draw up with admirable dexterity twenty thousand men, and confer immortality in miniature on Alexander and Louis XIV. He advanced his Engravings considerably with the etching point. Grace and

Engraving.

Artists' Names.	Where born and when.	Died at	A. D.
Charles Simanneau	Lyons 1639	Paris....	1728
Louis de Châtillon.	St. Menehould, in Champagne } 1639	Paris....	1734
Germain Audran	Lyons 1631	Paris....	1710
*Gerard Audran**	Lyons 1640	Paris....	1703
Jean Audran.....	Lyons 1667	Paris....	1756
Benoit Audran	Lyons 1661	Paris....	1721
Nicolas Dorigny†.....	Paris 1657	Paris....	1764
Antoine Coypel	Paris 1661	Paris....	1722
Gasper Duchange	Paris 1662	Paris....	1759
*Jean Bapt. de Poilly** ...	Paris 1669	Paris....	1728
Nicolas Henri Tardieu...	Paris 1674		
Jacques Nicolas Tardieu .	Paris 1718		
Claude Duflos†.....	Paris 1678	Paris....	1747
Louis Desplaces	Paris 1682		
Nicolas du Larmessin the younger‡..... }	Paris 1684		
Charles Dupuis	Paris 1685	Paris....	1743
Nicolas Gabriel Dupuis..	Paris 1696	Paris.. .	1770
Fredric Hortimels§	Paris 1688		
Bernard Lepicié.....	Paris 1699	Paris....	1755
Jean Jacques Flipart||...	Paris 1723		
Laurent Cars¶.....	Lyons 1702	Paris....	1771
Jacques Philippe le Bas..	Paris 1708	Paris....	1782
Jacques Firmin Beauvarlet ..... }	Abbeville 1733		
Jacques Aliamet	Abbeville 1727	Paris....	1788
François Aliamet.....	Abbeville 1734		
Pierre le Pautre	Paris 1744		

Chalcography.

elegance in the forms, and noble expression in the heads of his figures, distinguish this artist: and where landscape with buildings or other accessories is introduced, his tasteful arrangement and execution charm every eye; though in lightness and playful management of the point Della Bella is considered his superior. (Art. 51.) and his stroke is pronounced by Mr. Gilpin to be not so firm nor so masterly as that of Callot. Le Clerc was likewise an engineer, an architect, and a mathematician. His father, a goldsmith, intended him for a military life, and with the hope of a commission for him in the French service sent him to Paris, where, by the advice of Le Brun, and under the liberal patronage of Colbert, he became one of the most successful in his class of Art.

* This artist contributed to immortalize Le Brun by his admirable "Battles of Alexander" This superb set of Prints is completed by a Plate from the hand of Gerard Edelinck, "Alexander entering the Tent of Darius." In large Plates of historical subjects no Engraver in this class has been more distinguished than *G. Audran*. He was the son of Claude Audran, (Art. 41.) and nephew of Charles. (*Ibid.*) His brother *Germain* was of inferior merit, but his nephews *Benoit* and *Jean*, sons of Germain, profited largely from his instructions. *Charles* and *Louis Simonneau* and *Louis de Châtillon* formed themselves by the study and imitation of the fine style of Audran. Charles Simonneau was a pupil of Château, and at first worked in the manner of Francis de Poilly with the graver only; but afterwards introduced the point into his demitints and distances, reserving the graver for such parts as required prominency and vigour.

A good many of the artists in the above list were pupils or followers of the Gerard Audran School. On the merits of *Antoine Coypel* as a Painter we have already made some remarks, (PAINTING, p. 492.) in which M. Watelet's judgment concurs with our own, and condemns the practice of *Frenchifying* the heroes of antiquity. We wish we could call our own artists altogether free from the use of English physiognomy on similar subjects. A. Coypel etched several of his own designs. Mr. Gilpin praises an "Ecce Homo" by this artist, which, as well as some others, was finished by Simonneau. *Du Change* resembles Jean Audran. His Plates after Coreggio are worthy of that Painter. *Charles Dupuis*, his pupil, combined, in like manner, mellowness and harmony of execution with admirable drawing and heads full of expression and character. *Nicolas Gabriel Dupuis*, the other brother of that name, was also a pupil of Jean Audran. *N. Henri Tardieu* was a scholar of P. le Pautre, and afterwards of Jean Audran. His son *Jacques N. Tardieu* used more of the graver and less of the point than his father, to whom he is inferior, though an artist of considerable merit. *Jacques P. le Bas* was his fellow-pupil under N. H. Tardieu, and excelled in landscapes with small figures, which are beautifully touched, etched with great fire and spirit, and then harmonized with the graver and dry point. *Louis Desplaces* adopted in several of his numerous Plates (the best of them after Jouvenet) the style of Gerard Audran. *Jacques Aliamet* was a pupil of Le Bas, and distinguished himself by several good Plates of landscape after Vernet. His brother, *François Aliamet*, was for some time under Sir Robert Strange in London. *Bernard Lepicié* was a respectable artist, though not very correct draughtsman, and is regarded as a successful imitator of Jean Audran, whose pupil he probably was. His wife *Renée Elizabet* was also a neat Engraver. Fine specimens from most of these artists of the Audran School are to be found among the Engravings for the Crozat collection.

† The family of *Dorigny* is conspicuous in graphic biography. The father, *Michel*, born at St. Quentin in 1617, studied Painting under Vouet, and his son *Louis* under Le Brun. Michel is better known as an Engraver, but his Work is heavy from being overcharged with the burin; and Louis, who lived and painted chiefly and with some reputation in Italy, and died at Verona in 1742, has left several free painter-like etchings. Sir Nicolas, a younger son of Michel, knighted by George I. on the occasion of engraving the Cartoons of Raffaelle, resided thirteen years in England. He did not succeed in Painting, for the study of which he quitted at thirty the profession of the Bar; but his later and best style as an Engraver, modelled after that of Gerard Audran, to whom, however, he was much inferior, obtained him great and deserved reputation. The particulars of his history, some of them collected by Vertue from his own mouth, will be found in Walpole, *Catalogue of English Engravers*, p. 207.

* This was the son and pupil of Nicolas de Poilly. (Art. 41.) but his style differs remarkably from his father. His Plates, both in history and portrait, are specimens of good drawing and fine expression. A pupil of his, *Peter Aveline*, born at Paris in 1710, had considerable talent, which would have been more conspicuous if more of the subjects had been better chosen, and not sketchy trifles.

† *Duflos* resembles François de Poilly, (Art. 41.) but occasionally called in the assistance of the point. There is great neatness and finish in his numerous Prints.

‡ A pupil and son of the burinist Nicolas Larmessin the elder. (Art 41.) His Engravings for the Crozat collection gained him great celebrity, but his Works deserve not to be quoted for design nor for effect.

§ The Plates by *Hortimels*, in this class, have considerable merit. His best are for the Crozat collection. His daughter, *Maria Madeleine*, the wife of Charles Nicolas Cochin, engraved several Plates in the style of her husband, who, in 1758, published reflections on the Paintings and Sculptures of different European cities he had visited: a Work very favourably received.

|| He greatly surpassed his father and instructor Jean Charles Flipart, the burinist, (Art. 41.) and produced by a union of etching with Engraving many estimable Works.

¶ *Cars* ranks as one of the best Engravers in the XVIIIth Century for the kind of subjects, both in history and portrait, after Rigaud, Vanloo, Le Moine, Boucher, Watteau, and other designers which he selected. His "Hercules and Omphale," after Le Moine, is a *chef-d'œuvre*.

(57.) In the second and more numerous class some of the above names might be repeated; and some, such as Le Clerc and others, may perhaps be considered out of place in class the first. (Art. 56.) But besides that the precise degree in which etching combines with the burin is, in most of the works now under our consideration, by no means easily determinable, our space has not permitted us to make more than a very general arrangement. *France. Second class in compound Chalcography.*

We have had occasion to mention among the Wood-Engravers of France *Jacques Perisin*, or *Persinus*, as he sometimes inscribed himself. He executed some Plates coarsely etched and not correctly drawn, in concert with his contemporary *J. Tortorel*, representing the Wars of the Hugonots. The Work of these artists, who flourished about A. D. 1570, is only remarkable as exhibiting the earliest specimens recorded of etching among French artists, although the process had been almost half a century in use among their neighbours. There is, however, a spirited etching of this period, "The Departure of Hagar and Ishmael," by *René Boivin*, who was also a burinist, born at Angers about A. D. 1530. *Antoine Garnier* was one of the Engravers at Fontainebleau, (Art. 51.) after the Paintings by Prima- Early French artists. Boivin. Garnier.

Perrier.

ticcio. He flourished at Paris about A. D. 1560. *François Perrier*, born at Maçon in Burgundy, who studied in Italy, and Italianized his name to *Paria*, was a Painter of some celebrity, (PAINTING, p. 490.) and has left etchings in the manner of Palma, which Mr. Gilpin looks upon as successful imitations of that master; but they are slight and hasty performances, and often incorrectly drawn. He died at Paris in 1660.

Vignon

Claude Vignon, born at Tours in 1590, is another Painter who has left some specimens of masterly etching. Simon Guillam, a French Sculptor of about the same date, etched for his amusement several plates in a very spirited style.

Brebiette. Chaperon.

Pierre Brebiette and *Nicolas Chaperon* were provincial artists, born in 1596, who established themselves at Paris. The former, whose Paintings are little known in this Country, etched with considerable ability some clever designs from his own pencil. The latter was a pupil of Vouet, but made no progress, and afterwards at Rome betook himself to engraving the Pictures in the Vatican called "Raffaelle's Bible." It is recorded to the credit of this performance, that his work is, perhaps, the least faulty of the numerous graphic transcripts from those invaluable Paintings.

Other subsequent names.

The names that follow belong to the XVIIth and subsequent Centuries:

Artists' Names.	Where born and when.	Died at	A. D.
*Jacques Blanchard**	Paris 1600	Paris	1633
Michel Corneille the elder†	Orleans 1603	Paris	1664
Henri Mauperché	Paris 1606	Paris	1686
Laurent de la Hire	Paris 1606		
Israel Henriet	Nancy 1607	Paris	1661
Nicolas Mignard	Troyes in Champagne 1608	Paris	1668
Peter Mignard	Ditto 1610	Paris	1695
Abraham Bosse‡	Tours 1610	Paris	1698
Jacques Bellange	Chalons, about 1610	....	1642
Claude Dervet	Nancy in Lorraine 1611		
*Jean Morin**	Paris, about 1612	Paris	1666
J. R. de St. André	Paris 1614	Paris	1677
Samuel Bernard	Paris 1615	Paris	1687
Louis Testelin	Paris 1615	Paris	1655
Sebastian Bourdon†	Montpelier 1616	Paris	1671
Jean le Pautre	Paris 1617	Paris	1682
Charles le Brun	Paris 1619	Paris	1690
Nicolas Cochin	Troyes in Champagne 1619	About	1700
Jacques Courtois, alias *Bourguignon*	St. Hyppolyte in Franche Compté 1621	Rome	1676
Israel Silvestre	Nancy 1621		
Alexandre Silvestre	Flourished about 1700		
François Colignon	Nancy, about 1621		
Domenique Barriere	Marseilles 1622		
Jean Pesne (*Il Penna*)	Rouen 1623	Paris	1700
Nicolas Loir	Paris 1624	Paris	1679
Alexis Loir	Paris 1630		
Etienne Gautril	Paris 1626		
Jacques Rousseau‡	Paris 1626		
Noel Coypel	Paris 1628	Paris	1707

* Several distinguished Painters of the French School were excellent Etchers, and many names in this list will be found in our former pages; as *Jacques Blanchard*. (PAINTING, p. 490.) *Sebastian Bourdon* and *Charles le Brun*, (*Ibid.* p. 491.) *Nicolas Mignard*, *Jean le Pautre*, father of Pierre, (Art. 56.) *Jacques Courtois*, or *Bourguignon*, *Raymond de la Fage*, *Joseph Parrocel*, *Antoine Watteau*, and *Pierre Subleyras*. (*Ibid.* p 492.)

† The elder *Michel Corneille* was a pupil of Simon Vouet, (PAINTING, p. 490.) in whose style he executed several Paintings for Churches. He was one of the original twelve Members of the Royal Academy at Paris. His son, *Michel the younger*, had the advantage of the King's pension to enable him at Rome to complete his studies, which he prosecuted with becoming industry and energy. He was much employed by Louis XIV. Both artists left many fine etchings after Raffaelle, the Caracci, and their own designs. The name of Raffaelle was affixed by a cunning printseller at Rome to a set of Plates designed by the younger Michel Corneille. *Jean Bapt. Corneille*, his brother, born at Paris A. D. 1646, was also a Painter of some reputation, but inferior to Michel. He also etched with great spirit several Plates from his own designs and after the Caracci. Claude Gillot was his pupil, and Watteau a scholar of Gillot.

Another pupil of Vouet may be mentioned here, *Pierre Mignard*, who relinquished for the instruction of that able master the profession of Medicine. He then studied Painting at Rome for twenty-two years, and was much patronised by Urban VIII. and succeeding Popes. Both he and his brother Nicolas were too much engaged in designing to engrave more than a few Plates. They are bold, painter-like etchings. The family name and origin, says Watelet, were English. Some fine young Englishmen named More, serving in the army of Henri Quatre, were presented to that Monarch, who observed, *Ces ne sont pas des* Mores (negroes) *mais des* mignards (handsome fellows.) *Jacques Bellange* was also a scholar of Vouet. His Engravings have the merit of tolerable execution and excellent chiaroscuro, but his drawing of heads and figures is, as Mr Gilpin observes, affected and bad. *Samuel Bernard* and *Louis Testelin* were likewise under Vouet.

‡ Author of a Treatise entitled *La Manière de graver à l'Eau forte*, republished afterwards by Cochin with additions. Bosse worked chiefly from his own designs, but among his Prints, which are numerous, will be found many after other masters. His style is free and spirited, and finished with the graver in a masterly manner. His instructor in the Art is unknown, but he seems to have taken Callot for his model in those Plates on which the latter bestowed less finish.

There are in this list several other imitators of Callot (Art. 51.) who may here be mentioned. *François Colignon* was instructed in the Art by Callot. *Claude Dervet*, who was a pupil of Claude Henriet, a Painter little known, lived in habits of intimacy with Callot their fellow-countryman, and adopted the style of his friend. *Israel Henriet*, the son of Claude Henriet, studied some time at Rome under A. Tempesta, but was imitator of Callot. He became a printseller at Paris, and published his own Plates as well as those of Callot, Della Bella, and Israel Silvestre, to all of whom he occasionally gave employment. Another scholar of Claude Henriet was *Israel Silvestre*, who formed his style from the study of Della Bella and Callot, and seems, in his turn, to have been sometimes followed by Le Clerc. (Art. 56.) His son, *Alexandre Silvestre*, produced some good Prints, though inferior to those of Israel.

Nicholas Cochin was another follower of Callot, of whom he is supposed to have been a pupil. Like his master, he succeeded better in small figures than in those of larger dimensions.

* The best Prints of *Morin* are his portraits, and these are admirable productions. His Cardinal Bentivoglin, after Vandyke, is worthy of that immitable Picture. His execution is peculiar. He stippled his heads with the graver, intermixing lines and dots so harmonized as to produce a very pleasing effect. His Works extend, says M. Bartsch, to one hundred and twelve Plates. He had been a pupil of Philippe de Champagne, (PAINTING, p. 492.) but abandoned Painting for Engraving.

† *Bourdon's* Plates, which are numerous, and etched with a masterly point, are precious to every collector. They give a perfect idea of his manner of Painting. A kind of union, in landscape, of Titian with Poussin, picturesque backgrounds, and judicious management of light and shadow are the characteristics of this artist. It is to be regretted that his drawing is often faulty. Two of his pupils, *Nicolas Loir* and *Jacques Prou*, are in the above list. The etchings of N. Loir, to the number of nearly one hundred and fifty, are slight but spirited. His brother *Alexis* was an Engraver of considerable merit, after Rubens, Le Brun, Mignard, N. Poussin, Jouvenet, and his brother's designs. Their father was a goldsmith.

‡ *Rousseau* was a refugee Protestant who fled to England from the Persecution under Louis XIV. at the time of the Revocation of the Edict of Nantz. He married a sister of Herman Swanevelt (Art. 55.) and profited by his instructions. Under the patronage in England of the Duke of Montague, Rousseau contributed to the decoration of Montague House with his paintings. Mr. Gilpin, after remarking on his faults as an artist, subjoins that he was an excellent man. "Having escaped the rage of Persecution himself, he made it his study to lessen the sufferings of his distressed brethren by distributing among them the greatest part of his gains. Such an anecdote, he adds, should not be omitted in the life of a Painter, even in a short review of it." His etchings are beautiful.

Engraving.

Artists' Names.	Where born and when.	Died at	A. D.
Jacques Prou	Paris 1639		
*Jean Dolivar**	Saragoza....1641	Settled at Paris.	
Michel Corneille the younger	Paris 1642	Paris	1708
Jean Bapt. Corneille	Paris 1648	Paris	1695
Joseph Parrocel†	Brignoles in Provence ..1648	Paris	1704
Raimond de la Fage	Toulouse....1648	Paris	1690
Brothers *Bon Boullogne*‡	Paris 1640	Paris	1717
Brothers *Louis Boullogne*	Paris 1654	Paris	1734
Bernard Picart§	Paris 1663	Amst.	1733
J. Bapt. Boyer (Marquis d'Aiguilles)	Aix 1666		
Antoine Trouvain	Montdidier 1666		
Antoine Rivalz‖	Toulouse....1667	....	1735
Claude Gillot	Langres 1673		
Antoine Watteau	Valenciennes ..1684	....	1721
Chas. Nicolas Cochin the elder	Paris 1688		
Pierre Subleyras	Usez in Languedoc 1699	Rome	1744
Nicolas Chas. Silvestre¶	Paris 1700	Paris	1767
Quentin Pierre Chedel	Chalons 1705	....	1762
Chas. Nicolas Cochin the younger**	Paris 1715		
Bartholomew Rivalz	Toulouse....1724		
Jean Jacques de Boissieu††	Lyons 1736	Paris	1805

* *Dolivar* has been ranked with Chaveau and Le Pautre, but is inferior to both.

† *Parrocel* painted battles for Louis XIV. His best etchings are some small Plates of battle-pieces very scarce. A free, bold, and masterly style, and an admirable knowledge of chiaroscuro, pervade his productions. His "Life of Christ," in a series of numerous Plates, is considered inferior to his other Works. There lived in the following century another Parrocel, *Etienne*, probably of the same family, who executed some spirited etchings after De Troy, Subleyras, and others. Joseph Parrocel had been preceded in battle-painting by the famous *Jacques Courtois*, surnamed *Bourguignon*, (Painting, p. 492.) whose style he seems to have studied. Courtois has left some etchings of battles executed with masterly skill and effect. His custom of attending the army, and sketching on the spot during skirmishes and sieges, obtained him great facility. His name, Italianized in Italy to *Cortese*, or *Il Borgognone*, is well known by many splendid effusions of his pencil in that Country.

‡ The *Boullognes* were pupils of their father, the elder *Louis Boullogne*, Historical Painter and Professor in the Academy at Paris, by means of which his sons were sent to Rome and became Painters of considerable eminence. *Bon* was celebrated for pasticcio painting, and his brother *Louis* for a more vigorous tone of colour than generally prevails in the French School. There are several historical etchings by the sons and three by the father, one of them after Guido.

§ We have already noticed the *Picarts* under the School of De Poilly. (See sixth Note to Art. 41.) They have left numerous etchings among their engraved Works. Those of *Bernard* are chiefly book Plates. *Antoine Trouvain* pursued the style of Bernard Picart.

‖ *Rivalz* was a follower of La Fage, and has left many spirited etchings as well as drawings in the style of that master. Of La Fage's drawings, Carlo Maratti, with whom he was intimate at Rome, observed with characteristic enthusiasm, that he (Maratti) would abandon the Art if La Fage's Painting equalled La Fage's drawing. Many of La Fage's beautiful designs, some of which he etched himself, are engraved by Audran, Vermeulen, Simonneau, Ertinger, and others. *Bartholomew Rivalz* was a nephew and pupil of Antoine Rivalz.

¶ Grandson, according to Basan, of Israel Silvestre beforenamed. *Susannah Silvestre*, a lady of the same family, engraved some heads and portraits after Vandyke.

** *Charles Nicolas*, the father, abandoned Painting at the age of nineteen for Engraving, and has left many graphic specimens of taste, spirit, and correctness. He is most successful in figures of a middle size. The Plates of Charles Nicolas, the son, extend to upwards of fifteen hundred, many of them vignettes, frontispieces, &c., but the latter are so well executed as to have been sufficient to establish his fame.

†† Four Prints by this admirable artist are mentioned in the *Catalogue of an Amateur*, three landscapes and one interior in the style of Rembrandt. His friends designed him for the profession of the Law, but he devoted himself to Painting and Engraving, chiefly to the latter.

(57.) Out of the names of Spanish Chalcographers given in a preceding Note (Art. 42.) (Note (Z.) at the end of Engraving) we had intended to select some for particular observation here. But we must confine ourselves to a quotation from D. Cean Bermudez in his account of the establishment at Madrid of the Academy of San Fernando. It is to be found under the name Olivieri, in the *Diccionario dellas Bellas Artes*. "The art of copper-plate Engraving in Spain may be truly said to date its rise from the Academy of San Fernando. The fathers of the Art in that Country were Directors of the Academy.* It is true that the appointment of Engraver to the King's Cabinet had been previously held by meritorious artists, but their manner of executing copper-plate was more the result of their own genius than of any received principles of their Art. The first teacher of the elements of Engraving was *D. Manuel Salvador Carmona*,† one of the students under an Association preparatory to the foundation of the Academy, who was sent to Paris with a pension from the King to learn Engraving. At the same time, and with the same encouragement, *D. Juan de la Cruz* and *D. Tomas Lopez* were at Paris learning to engrave architecture, geographical maps, and ornamental Plates. Besides efforts abroad, the Academy received every possible benefit from one of its Directors, *D. Juan Barnabe Palomino*, who, without quitting Spain, had acquired for himself the Art of Engraving in a style which combines correctness with great clearness and lightness. He distributed to each of three pupils out of the number under his tuition an annual prize of one hundred and fifty ducats, to be conferred after a fair competition among the candidates; and he added, in 1760, a general premium, according to the advancement of the Art in its application to Works of Painting, Architecture, and Sculpture. Lastly, that no advantage should be wanting to give full effect to these arrangements, and to the

Chalcography. *Spain.* Academy of San Fernando. Carmona. Palomino.

* Under the auspices of Philip V., who, from the moment of his accession to the throne of Spain, applied himself with laudable anxiety to the revival of the Arts in that Country, by inviting to his Court several distinguished foreigners from France and Italy. One of these was D. Juan Domingo Olivieri, a Genoese sculptor, who, by the success of his School at Madrid, showed the practicability of establishing a Royal Institution. At his instance, the King, in 1741, gave his sanction for that purpose, and assigned as an appropriate edifice the Casa de la Panadaria. The death of Philip, however, in 1746, suspended for a time the completion of the establishment, but his son and successor Fernando, (Ferdinand V.) whose name the Academy bears, completed the undertaking with truly Royal munificence. Charles III. was a further contributor to its advancement, and among other privileges he granted, in 1778, to the Professors of San Fernando the honour of ranking with the Noblesse and Gentry of Spain. His son Charles IV. took great interest in the proceedings of the Academy, and himself frequently presided for the distribution of premiums.

Among the foreign artists invited to the Court of Spain was the family of Trepolo already mentioned. (Art. 51.)

† This eminent Engraver was born at Madrid in 1740. He was a pupil at Paris of Charles Dupuis, (Art. 56.) and was received into the Academy of Paris in 1761. His Prints after Sohmeni, Velasquez, Murillo, Vandyke, Guercino, Mengs, and others, are very fine. His pupil, *Fernando Selma*, engraved some admirable Plates in the same style after Raffaelle. Among the few Spanish Painters who have excelled in the use of the etching point, *D. Vicente Victoria* ought to be mentioned, born at Valentia in 1658. He enriched the Cathedral of his native city with several fine Pictures. He was a man of taste and erudition, a Canon of S. Felipe, a distinguished antiquary, an acute writer on the Art, and a celebrated Poet, the intimate of Palomino, and of most of the able men of his time, both in Italy and in his native Country. Bermudez mentions a Work by him, *Historia Pictorica*, the publication of which was prevented by his death at Rome in 1712. He was a scholar of Carlo Maratti.

Engraving. progress of the students, two of the Academy were in 1763 sent to Paris with a pension from the King, to learn the mode of printing from copper-plate and of preparing and manufacturing every requisite for this important and long neglected object."

England. Artists in compound Xylography.

(58.) Approaching the ENGLISH School in that department of the Art for which our Countrymen have been most celebrated, we are bound in honesty to remark, that however successfully native genius and energy have brought the united exercise of the point and graver to a degree of excellence never surpassed, we are much indebted to foreign aid for the foundations of our graphic fame. We have already noticed (Art. 43.) that no Works with the burin only have been executed in England that will bear comparison with the *chefs-d'œuvre* of our Gallic and Flemish neighbours. Some British critics, indeed, have in former times, with a very natural and by no means unpardonable patriotism, withheld this acknowledgment, but the British School of Engraving may now very well afford to make it.* As it was truly observed, during the last long war with France, that most of our best ships were taken from our maritime rivals, so may it be as truly affirmed with respect to the laborious and ingenious productions now before us, that the industry and talent of Great Britain have profited by the progress of foreign Engravers, and with honourable rivalry have not only made the labours of foreign hands their own, but have improved upon the inventions of their competitors. Our following list in the first class (Art. 49.) was much longer, and included at least eighty names, but brevity constrains us to mention only the leading artists.

Very numerous, and eminently successful.

First class. (Art. 49.)

Artist's Name.	Where born and when.	Died at	A. D.
Wenceslaus Hollar†	.....Prague.....1607	..London ..	1677
*William Faithorne the elder**	London	London ...	1691
David Loggan†.....	Dantzic, about .		1630

Chalcography.

* Evelyn, in his *Sculpturn*, (p. 91.) compares *Thomas Cecil*, an artist certainly of some merit, to the best Engravers of his time—the time of Nanteuil! (Art. 41.) Also *William Lightfoot*, of whom as an Engraver nothing is known, and who was employed as an architect at the building of the Royal Exchange, Evelyn considers *little inferior to Wierinx*. (Art. 40.) In a subsequent reign too, the reign of Pope and Addison, and literary taste, we wonder how those lights of our Augustan Age in England could lavish such injudicious praise on mediocrity in the Fine Arts. The Works of *Isaac Fuller*, who has left some very indifferent etchings, and whose portrait-painting was his only merit, called forth an Addisonian Poem in Latin: and *Charles Jervas*, who it is said instructed Pope to draw and paint, but whose Pictures have no drawing, nor colouring, nor composition to recommend them, received a well-known complimentary Epistle from the great Poet; where the growing beauties of some of his young friends are compared with the productions of this Painter.

> Oh! lasting as thy colours may they shine,
> Free as thy stroke, yet faultless as thy line,
> New graces yearly, like thy works display,
> Soft without weakness, without glaring, gay, &c.

It was Jervas who, having copied a Picture by Titian, was so delighted with the superiority, as he thought, of his copy to the original, that he could not resist exclaiming with some degree of pity for the *gone by* Venetian: "Poor little Tit! how he would stare!"

† This meritorious designer and Engraver was of an ancient Bohemian family, and was brought up to the profession of the Law: but the capture and plunder of his native city in 1619, during a Civil war, and the consequent poverty and dispersion of his connections, reduced him to take refuge at Frankfort, where, following his predilection for the Art, he became a pupil of Matthew Merian. (Art. 50.) The Earl of Arundel, on his embassy to Ferdinand II, met with Hollar at Cologne, became his patron, attached him to his suite, brought him afterwards to England, and introduced him, it is said, to the notice of Charles I., who had already testified his zeal for graphic improvement in this Country by appointing *Vander Voerst*, a respectable Flemish artist, to the place of King's Engraver, and by giving employment in England to the famous *Lucas Vorstermann* (Art. 40.) from the year 1623 to 1631. It does not appear, however, that Hollar's style was appreciated according to its merits by his contemporaries. But whatever impression he might have made on the Public or his employers was soon effaced in this Country by the miseries of Civil war. His attachment to the Royal cause procured him the honour, in 1645, of being made a prisoner at Basinghouse, in Hampshire, whence on his liberation he repaired to Antwerp, and there continued to engrave from the collection of Earl Arundel, who had succeeded in removing to that city. The death of his patron, however, in 1646, drove Hollar into great indigence, and into the employment of booksellers and printsellers, from whom his utmost industry could obtain but very scanty remuneration. He ventured in 1652 to revisit England, and was employed, but earned barely a subsistence. The return of his friends at the Restoration somewhat bettered his circumstances; but the Fire of London and the Great Plague were necessary obstacles to every pursuit of Art, even if the Court of Charles II. had been less dissolute and less neglectful of modest and deserving men. He was, however, commissioned by the Government in 1568, and the following year, to make drawings of the forts and town of Tangiers, which he afterwards engraved. On his return from this expedition in the ship Mary Rose, Captain Kempthorne, the vessel was engaged by seven Algerine corsairs, off Cadiz; but continued her voyage with the loss of eleven men killed and seventeen wounded. Hollar escaped unhurt, and afterwards commemorated the gallant action in an Engraving For his two years' service in this undertaking he received only one hundred pounds, which was paid after long delay and many humble solicitations. No life of an artist has, perhaps, been more eventful than that of this industrious Engraver. On his death-bed, at the age of seventy, he is said to have requested the bailiffs, who came to seize his only piece of furniture, namely, the bed on which he lay, to spare him the use of it for a few hours, and then to remove him to the prison of the grave. His Works amount to nearly two thousand four hundred Prints, in every department of the Art, portrait, history, costumes, antiquities, entomology, landscapes, and views, in which latter he particularly excelled. The characteristic of his point is freedom and playfulness, united to great firmness and finish.

Among the pupils of Hollar (none worthy to succeed him) were *Thomas Dudley*, *William Howard*, and *Robert Gaywood*; (they flourished A. D 1645 or 1650.) Gaywood was wholly a portrait-engraver, and did not confine himself to the style of his master, but studied also, and with some success, Voerst, Vorstermann, and the Vandyke School. *Edward Marmion* is mentioned as a follower of Gaywood. Other imitators of Hollar were *Thomas Cross*, who flourished about A D. 1658; *Thomas Neale*, *Daniel King*, and *Balthazar Moncornet*, about A. D. 1650; and *John Dunstall* about A. D. 1660. Nearly all these names will be found in Lord Orford's *Anecdotes*.

* This artist was pupil of Robert Peake, a Painter and Printseller; afterwards knighted by Charles I. Peake, during the Civil war, obtained the rank of Lieutenant-colonel in the Royal army, and persuaded *Faithorne* to enter the service. Faithorne and his Colonel were made prisoners at Basinghouse; and Faithorne obtained his liberty on condition of leaving the Kingdom. He retired to Paris, where, under the instructions of the celebrated Robert Nanteuil, (Art. 41.) he greatly improved himself. Obtaining permission, about A. D. 1650, to return to England, he established himself near Temple Bar as a Printseller, and afterwards resided in Printing house Yard, Blackfriars, where he continued to engrave and paint portraits in crayons, an Art which he had learnt during his exile in France. His circumstances were straitened, and his death, it is said, was hastened by the dissipation of his son, William Faithorne the younger, who practised Engraving in mezzotinto, but did not outlive his thirtieth year. The Works of the elder Faithorne are numerous, chiefly portraits, many of them admirably executed, clear, brilliant, and full of colour.

John Fithan, who flourished about A. D. 1676, was a pupil of the elder Faithorne. He died young; but executed a few portraits.

† *David Loggan*, says the noble writer of the *Anecdotes*, is reported to have been taught Engraving by Simon de Passe in Denmark. Passing through Holland, he studied under Houdius, and came to England before the Restoration, bringing over with him *Abraham Blooteling* and *Gerard Valck*, who worked for him in mezzotinto. He distinguished himself by Plates of the public buildings at Oxford; and afterwards at Cambridge. He lived latterly in Leicester-fields. His best and most numerous Works are portraits

Engraving.

Artists' Names.	Where born and when.	Died at	A. D.
Michael Vander Gucht	Antwerp	1660	1725
*George Vertue**	London	1684	1756
Simon Francis Ravenet†	Paris	1706 England	1774
J. B Chatelain‡	England, about	1710	
Francis Vivares	Montpelier	1712 London	1782

Artists' Names.	Where born and when.	Died at	A. D.
*John Browne**	Oxford	1719	
Sir Robert Strange†	Orkneys	1721 London	1792
Giov. Batista Cipriani‡	Florence, about	1728 London	1785
Wm. Wynne Ryland	London	1732	1783
William Woollet§	Maidstone	1735	1785

Chalcography.

engraved in a neat but formal style. According to Lord Orford and Vertue, *Vander Gucht* was a disciple of Loggan.

Edward le Davis, a native of Wales, who flourished in 1670, and *Robert White*, a portrait-engraver, born in London in 1645, were pupils of Loggan. White, in 1764, engraved the first *Oxford Almanac*. His son and pupil, George White, etched some portraits in the style of his father; but his best are in mezzotinto.

* The instructor of *Vertue* was *Michael Vander Gucht*, who studied for some time under one of the Boutats, and afterwards settled in England, but in what year is not ascertained. Vander Gucht engraved portraits, book-plates, and anatomical figures, and was succeeded by his sons *Gerard* and *Thomas*, in the same line. Vertue passed seven years under Vander Gucht, and in 1709 set up for himself, and became an excellent draughtsman by studying for several years in the Academy of Painting instituted in 1711, with Sir Godfrey Kneller at its head. His taste led him to antiquarian researches, and to indefatigable inquiry after every object connected with his Art. The *Anecdotes of Painting*, compiled by Lord Orford from the papers of Vertue, fully attest the diligence and fidelity of the latter as a biographer. His engraved Works are distinguished for truth, care, and accuracy, but want force. They are extremely numerous, consisting of portraits, historic Prints, and antiquities of every description. He engraved the *Oxford Almanac* for many years. He was employed by the Knaptons to engrave the Kings of England for Rapin's *History*, and afterwards upon several of the "Illustrious heads," most of which, however, are by Houbraken, (Art. 40.) and much superior to those of Vertue.

† *Ravenet* settled in London about A. D. 1750, and became a powerful acquisition to the English School. He was one of Hogarth's ablest coadjutors. He engraved several portraits after Reynolds and others, and a variety of historical subjects after Titian, P. Veronese, Guido, Guercino, A. Caracci, N. Poussin, L. Giordano, Rembrandt, Carlo Cignani, Le Sueur, &c. His Prints are remarkable for colour, brilliancy, and precision. His son and pupil, *Simon Ravenet*, visited Paris, continued his studies under F. Boucher, and finally settled at Parma, where he conceived and executed between the years 1779 and 1785, the magnificent project of Engraving the whole of Coreggio's Works in that city.

Among the pupils of S. F. Ravenet in this Country were *William Wynne Ryland* and *John Hall*. Ryland also studied for five years at Paris successively under F. Boucher and P. le Bas. (Art. 56.) On his return to England he was appointed Engraver to the King, and engraved portraits of George III. and Lord Bute after Ramsay; and of Queen Charlotte after Coates. He engraved also some historical subjects after P. da Cortona, Vandyke, Boucher, &c.; but latterly applied himself to chalk Engraving, (after the designs of Angelica Kauffman.) which he greatly improved, and of which, jointly with Bartolozzi, he was the introducer into this Country. Ryland suffered for forgery, August 29, 1783. *John Hall*, his fellow-pupil under Ravenet, was likewise a highly meritorious artist. His Plates are fine specimens of boldness and clearness. His principal portraits are after C. Maratti, Reynolds, and Gainsborough; and his best historical subjects after Dance, West, &c. His "William Penn treating with the Indians," and "Cromwell dissolving the Long Parliament," (both after West,) are well known. Hall, on the death of Woollet, succeeded to the appointment of Engraver to the King. His father, *Charles Hall*, (born about A. D. 1720,) was a respectable Engraver of portraits, and was also much employed in prints of coins, medals, and other antiquities.

Henry Bryer, a pupil of Ryland, and his partner as a Printseller, engraved a few Plates chiefly from designs of Angelica Kauffman.

‡ This artist, a Briton born, was endowed with abilities of the first order: his designs are full of genius, and his Works show uncommon facility. But he was idle and dissolute, and seldom exerted himself until compelled by necessity. It is to be regretted that his peculiar and surprising talent for designing and engraving landscape, either from nature or from his own fancy, was not more regularly employed. He engraved chiefly after Gaspar Poussin and others for the collection of fine landscapes published by Boydell in 1744.

We may here notice a few other Engravers in this class employed by that spirited publisher. *Thomas Chamoers*, born in London about A. D. 1724, whose style though firm is not pleasing; *John Wood*, whose landscapes after S. Rosa, G. Poussin, Claude, Rembrandt, Wilson, &c., have considerable merit; *Carlo Fanucci*, a Florentine, and pupil of Carlo Gregori; he engraved after Carlo Dolce, P. da Cortona, Rubens, Guido, &c.; *Alexander Bannerman*, born at Cambridge about 1730; *John Hall*, a distinguished scholar of S. F. Ravenet above mentioned; and *Giovanni Vitalbi*, a pupil of Wagner, (Art. 50.) and who worked for Boydell in 1765. Wagner himself had visited England about thirty years before, when among other Plates he engraved portraits of the three Princesses, daughters of George II., and returned to Venice.

A celebrated pupil of Chatelain was *Francis Vivares*, who improved upon the style of his preceptor, and became one of the best landscape Engravers of his time. His happiest efforts are after Claude Lorraine; and when it is considered that in some instances he had actually no opportunity of seeing the original Paintings, it is extraordinary with what truth and ability he has portrayed the airy softness and freshness of that Painter. Vivares engraved likewise many fine Plates after G. Poussin, Gainsborough, Vandernecr, Smith of Derby, the Smiths of Chichester, &c. *Daniel de Lerpiniere*, a supposed pupil of Vivares, engraved many fine landscapes and views of sea-fights, &c. in the same style, which have great merit. The name of another English scholar of Vivares, *P. Paul Benasech*, will be found in the above list, who, according to Basan, worked some time at Paris, but returned to England. He engraved landscapes and other subjects after A. Ostade, Vernet, Dietricy, &c.

* This was another masterly Etcher and Engraver of landscape. His Works after Gaspar Poussin, Teniers, Hobbima, Rubens, Salvator Rosa, Claude, Both, &c. are excellent. *Browne* etched some of the Plates which were finished by Woollet.

† *Strange* may be regarded as the father of his branch of the Art in England. It is remarked of him that he seems never to have known mediocrity; that his very beginnings are perfect; and that throughout his Works no steps can be traced of gradual progress as in the labours of other artists. His early proficiency under Cooper, a drawing-master in Edinburgh, is as highly honourable to his instructor as it afterwards was profitable to himself. The Civil war, however, on the landing of the young Pretender in Scotland, interrupted all artistic studies: and Strange visited Paris, after passing some time in London. On his way to the French metropolis he frequented for a while the Academy at Rouen, and obtained an honorary prize for design against numerous competitors. At Paris he became a pupil of the celebrated P. le Bas, and acquired under that master the management of the dry point. His own admirable productions, consisting of about fifty Plates, show with what success he has improved upon the suggestions and practice of his instructor in the use of that instrument. In 1751 he returned to London, and ten years after repaired to Italy, whither his reputation had already preceded him. In this tour he was greeted everywhere with honours, and made successively Member of the Academies at Rome, Florence, Bologna, Parma, and Paris. Strange held the appointment of Engraver to Geo. III. The honour of Knighthood, which was conferred upon him in 1787, he did not long survive. The peculiar excellence of Strange is the delicacy of effect with which he expresses the softness, roundess, elasticity, and transparency of flesh. No artist, with the exception of Bartolozzi, has been worthy of comparison with him in this very rare graphic quality. His constant practice, it is thought, of making drawings (chiefly in red chalk) from the best foreign masters acquired him this valuable peculiarity.

Pierre Maleuvre, a neat Engraver of the French School, born at Paris in 1740, was a pupil of Sir Robert Strange; and *F. Legat*, who resided in London about A. D. 1780, in the employment of Boydell, was a follower, certainly *non passibus æquis*, but yet respectably.

‡ This artist, says Lanzi, formed his style by studying the works of A. D. Gabbiani, a Florentine Painter. He went to Rome in 1750, passed two or three years there, and then came to settle in England, where, jointly with Bartolozzi, (Art. 50.) his designs became distinguished throughout Europe. He was one of the Members of the Royal Academy at its foundation in 1769. He painted few large Works; but his drawings, which are admirable, are numerous. He engraved a few portraits, and some Plates after Gabbiani, B. Celini, and his own designs.

§ The peaceful life of this great artist exhibits a strong contrast to the wild and adventurous career of many of his graphic brethren;

Engraving.

Artists' Names.	Where born and when.	Died at	A. D.
John Hall	Near Colchester	1739 London..	1797
*William Byrne**	London	1743	1805
Peter Paul Benasech	London about..	1744	
John Keyse Sherwin†	In England	1746	
Anthony Cardon the younger‡	Brussels	1773 London..	1816
Simon Ravenet	London about..	1755	

England. Second class. (Art. 49.)

(59.) Our second list, selected from the more numerous class, must be still more abridged: and will be found to contain many names equally illustrious with those in the first. In some cases we find no small difficulty, as was before observed, in determining whether the etching needle or the graver predominates in Works of this kind. The connoisseur reader will also observe that many Engravers require in strict justice a place in both classes, but our limits preclude the repetition.

Artists' Names.	Where born and when.	Died at	A. D.
Peter Oliver§	London	1601	1660
John Evelyn‖	Wotton, Surrey..	1620	1706
Abraham Hondius	Rotterdam	1638 London .	1695

such as Hollar, Faithorne, and Ryland. *Woollet's* life is best known by his Works. He was taught by an obscure artist named Tinney, and had not the advantage of any other master. He excelled in every department; in portrait, in history, and in landscape, but particularly the latter. His well-known historical Print, "The Death of Wolfe" after West, gave a greater name to the English School on the Continent than it had ever before obtained. But his landscapes after Wilson are standard models of excellence. No artist has been happier in the judicious arrangement of lines (Art. 14—22.) for distinguishing the varied surfaces of objects, though it must be owned that in representing the softness of flesh he was less successful. Engraving, however, according to modern practice, admits of the joint efforts of several artists on the same Plate, so that each may direct his own talents to those parts for which they are best suited; and we now hardly ever meet with an Engraving the entire work of one hand. Woollet held the appointment of Engraver to George III.

A very able contemporary of this artist was *William Ellis*, who engraved some Plates in conjunction with Woollet, and from whom we have also several fine Prints of landscape from designs of Paul Sandby and Thomas Hearne.

* *Byrne* was successively a pupil at Paris of Aliamet and of J. G. Wille. (Art. 39 and 56.) He was an eminent Engraver of landscape, and executed many considerable Works after Domenichino. Claude, Zuccherelli, Claude, Both, Dietricy, Wilson, Hearne, Farrington, Smith, &c. Bartolozzi occasionally assisted him in the figures of his pieces.

† *Sherwin* was appointed Engraver to the King. He flourished from 1775 to 1795, and engraved many fine portraits after Gainsborough, Dance, Reynolds, &c. as well as historical subjects after N. Poussin, Reynolds, Stodhart, &c.

‡ This Engraver took refuge in England A. D. 1790, in consequence of the insurrection in Belgium. He worked for Colnaghi, and was employed in various contemporary publications. His best Plates are after Stodhart, and a Salvator Mundi after Carlo Dolce. His death was premature and hastened by intense application. His father, the elder Anthony Cardon, a Flemish artist, engraved at Naples for Mr. Hamilton.

§ His father and instructor, Isaac Oliver, was a celebrated Painter of miniatures. (PAINTING, p. 403.) *Peter Oliver*, according to Vertue, etched some small Plates of historical subjects. *John*, a supposed nephew of Peter, both etched and engraved in mezzotinto.

‖ To this gentleman the Art of Engraving in England is indebted for one of the earliest English publications on the subject entitled *Sculptura*. His Work is rather a pedantic performance, but contains much learned information, and has probably tended in this Country to introduce graphic amateurship among persons of rank and of literary leisure. *Evelyn* etched five Plates of his journey from Rome to Naples about A. D. 1649. Contemporary with Evelyn was another gentleman of considerable graphic talent, *Francis Place*, who was bred to the Law, but took advantage of the Great Plague in London to quit the profession, and exchange the quill for the pencil. He was a man of genius, but without application equal to his abilities. He painted, etched, and engraved in mezzotinto. According to Lord Orford, Place was "offered £500 a year by Charles II. to draw the Royal Navy, but declined accepting it as he could not endure confinement and dependence." His etchings after Barlow are very fine. He likewise engraved portraits

Chalcography.

Artists' Names.	Where born and when.	Died at	A. D.
*John Griffier**	Amsterdam ... 1645	London ...	1718
William Lodge	Leeds	1649	1689
Jonathan Richardson		1665	
Sir James Thornhill	Weymouth 1678		1734
William Hogarth†	London	1697 London ...	1764
George Knapton‡		1698 Kensington	1788

after Kneller, Vandyke, Greenhill, &c., which are scarce, as he wrought for his own amusement.

An intimate friend of Place was *William Lodge*, whose father, a merchant at Leeds, was one of the first Aldermen of that town in 1626. Lodge having finished his academical education at Cambridge, and made a commencement at Lincoln's-Inn, attended Lord Bellasis, afterwards Lord Falconberg, on his embassy to Venice, where, meeting with the *Viaggio Pittoresco* of Giacomo Barri, he was so delighted with the Work that he translated it into English, and added, of his own Engraving, heads of the most eminent Painters and a map of Italy, published in 8vo. 1679. He also etched several of his views in Italy, and other Works. Place and his friend Lodge were Members of a Club of virtuosi at York. (See Walpole, *Catalogue of Engravers*, p. 100.)

* *Hondius* and *Griffier* were Painters, the former of animals, (of which he has left some fine etchings,) the latter of landscapes and views. Some of *Griffier's* etchings of views on the Rhine and on the Thames are very pleasing.

Other Painters will be found in the above list. *Oliver*, already mentioned, was a *peintre graveur;* also *Jonathan Richardson*, a pupil of John Riley, (PAINTING, p. 494.) and a valuable writer on Art; likewise *Sir James Thornhill*, who executed a few etchings in a bold slight manner; and his renowned son-in-law, *William Hogarth.* (*Ibid.* p. 495.) *F. Zuccherelli* was one of the original Members of our Royal Academy, who, in early life, amused himself with the etching point. The *Smiths* of Chichester, whose landscapes, particularly those of *George*, have employed the ablest Engravers, have left several small sets of etchings after their own designs. *George Stubbs*, the (in his day) inimitable painter of horses, etched the Plates for his "Anatomy of the Horse." *George Barret*, an excellent Painter of Irish and English landscape scenery, has left a few spirited and picturesque etchings. *Joseph Goupy*, an eminent Painter in water-colours, etched after Solimene, Rubens, P. da Cortona, N. Poussin, and his own designs. *Sawrey Gilpin*, R. A., etched animals after his own spirited and masterly designs; as likewise some heads for his brother's book, *The Lives of the Reformers*. *Alexander Runciman*, who painted, among other Works, "The Ascension," for the Episcopal Church at Edinburgh, where he presided over the Scottish Academy of Arts, engraved and etched a few Plates from his own designs. *J. H. Mortimer* (see PAINTING, p. 496.) etched in a bold, free style several studies after S. Rosa, Lairesse, &c. *Maria Angelica Kauffmann*, R. A., has left several tasteful and spirited etchings; some after Coreggio, but chiefly from her own designs; and, lastly, *L. Schiavonetti*, the disciple and coadjutor of Bartolozzi in England, claims distinguished notice, whose Engravings, after Michel Angelo, Loutherbourg, Stodhart, &c. are well known.

† We have already remarked upon *Hogarth* as a Painter. (PAINTING, p. 498.) His style of Engraving is not distinguished by any remarkable dexterity in laying his lines or by delicacy of touch, but by strong characteristic delineation. The unexampled demand for his Works required the assistance of several other hands. Among his foreign coadjutors were *Scotin*, *Baron*, and *S. Ravenet*, (Art. 58.) who worked for him in the "Marriage à la Mode;" *C. Grignon*, who completed his "Garrick" in Richard III., and who, with *Le Cave* and *Aveline*, assisted him in the four Plates of "The Election." But he employed also some able native artists. *Woollet*, in 1759, assisted in some designs from *Tristram Shandy;* and *Luke Sullivan*, a native of Ireland, who had been a pupil of Thomas Major, and who was of a kindred temperament, well suited to catch the humorous conceptions of Hogarth, gave him his best aid, when not engaged (for he was idle and dissipated) in following his own inventions.

Thomas Major, the master of Sullivan, had studied some years at Paris. He engraved in a neat firm style after Berghem, Wouwermans, Murillo, G. Poussin, Rubens, Claude, Teniers, &c. Also twenty-four Prints of the "Ruins of Pæstum," published in 1768.

‡ A scholar of Jonathan Richardson and Painter of portraits in crayons. In conjunction with *Arthur Pond*, a Painter also of portraits in oil and crayons, *Knapton* engraved and published a set of Prints from drawings of celebrated Painters, chiefly landscapes after Guercino, a very creditable performance. Knapton, likewise, among other Works, was engaged in publishing the "Heads of Illustrious Persons," engraved by Houbraken, &c. (Art. 40.) Pond etched

Engraving.

Artists' Names.	Where born and when.	Died at	A. D.
Francis Zuccherelli.....	Tuscany..... 1702	Florence	1788
Brothers. *William Smith*	Chichester..... 1707	.....	1764
Brothers. *George Smith*	Chichester..... 1714	.....	1766
Brothers. *John Smith*	Chichester..... 1717	.....	1764
*Edward Rooker**.....	London about 1812		
John Boydell†.....	Dorrington 1719	London .	1804
George Stubbs.....	Liverpool..... 1724	.....	1806
William Elliot‡.....	Hampton Court .. 1727	.....	1766
George Barret.....	Dublin 1728	London .	1784
Joseph Goupy	Anvers 1729	.....	1763
Sawrey Gilpin.....	Carlisle 1733	.....	1807
Alexander Runciman, settled in Edinburgh .	1773	.....	1780
John Hamilton Mortimer§	Eastbourne, Sussex 1739	London .	1779
James Basire||.....	London..... 1740		
Angelica Kauffman,¶ settled in England....	1765	Rome ...	1807

several caricature Prints, and some Plates in imitation of Rembrandt, in a very tasteful and spirited manner.

* An admirable Engraver of architectural views. Among his other Works is a Plate with sections of St. Paul's Cathedral, and views after Wilson and Paul Sandby. His son, *Michael Rooker*, acquired considerable celebrity in the same way, and engraved head-pieces to the *Oxford Almanacs* for many years. Michael was one of the first Associates of the Royal Academy.

† Few men by individual energy and ability have contributed more in any Country to the promotion of the Arts than this estimable Englishman towards their advancement in his own. He was brought up by his father, who was a land-surveyor, to the same business, but was so attracted by a book of Prints containing views in England, particularly some by *Toms*, a respectable Engraver of architectural subjects, that he came to London at the age of twenty-one to bind himself a pupil to that artist, and for six years applied himself assiduously to the Art. After leaving Toms, *Boydell* engraved and published several views of his own near London and throughout England and Wales, a popular Work in one volume, for five guineas. From this beginning he rose to considerable wealth and reputation. He often spoke in after-times of this Work as the "first book that ever made a Lord Mayor of London." His judicious and liberal management of an extensive commerce in Prints throughout Europe gave him means and opportunity of employing the ablest artists of his time, and of exporting to advantage what had formerly been an article of constant importation from the Continent. Boydell's property, however, was so greatly injured by the French Revolution, that his celebrated Shakspeare Gallery, which he had intended to bequeath to the Public, was disposed of by lottery. He was elected in 1770 Alderman of his Ward, and in 1791 served the office of Lord Mayor.

Under our former list (see Note on *Chatelain*, Art. 58.) we mentioned some names of Engravers employed by Boydell. We may here add *T. Taylor*, who worked after S. Rosa and Van Harpe, and from vignettes designed by J. Gwyn; *James Peak* after Claude, Wilson, J. Smith, Borgognone, &c.; *Anthony Walker* and his brother *William*: the former (a fellow-pupil with Woollet under John Tinney) engraved after P. da Cortona, Holbein, Rembrandt, Chatelain, and others; the latter after Vandyke, Le Moine, Rubens, Trevisani, Van Harpe, &c. William is said to be the inventor of an expedient for rebiting etched Plates, by the application of fresh varnish with a dabber, (Note (BB.) at the end of ENGRAVING.) a most useful discovery, of which Woollet occasionally availed himself: and whenever it succeeded to his mind would usually exclaim, "Thank you, William Walker."

Among foreigners who settled in England under Boydell's encouraging support were *Pietro Antonio Martini*, born at Parma 1739, who had etched for Le Bas at Paris; *Matthew Liart* and *Jean Baptiste Michel*, both Parisians; and *Victor Maria Picot*, born at Abbeville in 1744, and employed by Boydell about A. D. 1770.

‡ A fine landscape Engraver with a free and tasteful point, after Cuyp, Rosa da Tivoli, and Polemberg, but chiefly after the Smiths of Chichester, for whom see the above list.

§ A very clever pupil of *Mortimer* was *Robert Blyth*, who has etched some of that master's drawings with a spirit such as they well merit.

|| *Basire* engraved after Reynolds, Wilson, West, &c., and is remarkable for producing the largest Print ever executed on one Plate (about 27 inches by 47) from the Picture at Windsor, representing "The Field of the Cloth of Gold." *John Green*, a pupil of Basire, engraved several landscapes and views and a few portraits. Green likewise engraved the *Oxford Almanacs* for many years.

¶ We might mention other ladies who have contributed to adorn the English School of Engraving, but ought not to omit our Countrywoman, Miss *Hartley*, a charming etcher, who flourished about 1764.

Artists' Names.	Where born and when.	Died at	A. D.
*Humlet Winstanley**.....	.....	.....	1760
Luigi Schiavonetti.....	Bassano..... 1765	London .	1810

Chalcography.

OPUS MALLEI, *or Method of Engraving by the Punch and Mallet.*

(60.) This old method of Engraving, which is now nearly exploded, and which was in some measure calculated to imitate chalk drawings, is a tedious operation, and must have poorly repaid the few artists who have attempted it for their time and trouble,† since no more impressions can be obtained than from a Plate slightly etched. Method styled "Opus Mallei," why disused.

James or *John Lutma*, a Dutch goldsmith, born at Amsterdam about A. D. 1629, is usually mentioned as the best performer in this way. M. Bartsch, however, enumerates four others, beginning with *Giulio Campagnola*, who flourished about 1500. (Art. 35.) A print of "John the Baptist holding a Cup," by this artist, is certainly a curious proof of the antiquity of dotted Engraving. The background is expressed by dots to all appearance executed with the dry point, and the outline of the figure is put in with a deeply engraved stroke finished within with dots.‡ Lutma. Giulio Campagnola.

Of Scraping in MEZZOTINTO.

(61.) This ingenious invention was for some time attributed to Prince Rupert, on the authority of Lord Orford and of Vertue; § but Baron Heineken, with more probability, traces it to *Ludwig von Siegen*, who was a Lieutenant-colonel in the service of the Landgrave of Hesse, and by whom a portrait is extant of Amelia Elizabetha, Princess of Hesse, dated 1643, seventeen years before the Restoration in England, when the discovery by Prince Rupert is said to have been made. Heineken maintains that Prince Rupert, when in Holland, learnt the secret from Von Siegen, and brought it into this Country, when he came over the second time to England in the suite of Charles II.|| Invention of mezzotinto scraping by *Von Siegen*.

Some writers have ascribed to Rembrandt the honour of this discovery; but M. Bartsch, referring to six or seven of the Plates by that artist adduced in proof of the assertion, observes, that although the impressions

* A pupil of Sir G. Kneller, on leaving whom he visited Italy and afterwards returning to England devoted himself entirely to Engraving. He etched a set of Prints from the Paintings of Sir W. Thornhill in the cupola of St. Paul's; also about twenty Plates from the collection of the Earl of Derby, after Titian, Tintoretto, P. Veronese, Bassano, Guido, Castiglione, Spagnoletto, C. Maratti, Rubens, Vandyke, Rembrandt, &c. His father, *Henry Winstanley*, was the unfortunate projector and builder of the Eddystone Lighthouse, and perished in the ruins during the storm in the year 1703. Henry Winstanley designed and etched several views, dedicated to James II., with a complimentary address to Sir Christopher Wren.

† See Note (CC.) at the end of ENGRAVING.

‡ In the year 1560, an artist at Bologna, *Geronymo Fagiveli*, produced some punched Plates after the drawings of Coreggio, C. del Salviati, and Francesco Mazzuola. He superadded, however, the use of the graver.

§ See Walpole's *Catalogue of Engravers*, in the fifth volume of the *Anecdotes*, p. 137. Evelyn, at the head of chap. vi. of his *Sculptura*, calls mezzotinto *the new way of Engraving invented and communicated by his Highness Prince Rupert, Count Palatine of the Rhine, &c.*

|| See Heineken's *Idée générale d'une Collection complette d'Estampes*. A mezzotinto Print is extant by Lieutenant-colonel van Siegen, representing the "Holy Family," after Caracci, and inscribed with the following dedication: *Eminentissimo Principi Domino D. Julio Mazarino S. R. E. Cardinali, &c. Novi hujus Sculpturæ modi* primus inventor *Ludovicus a Siegen humillissime affert, dicat, et consecrat. Anno* 1657.

Engraving. from them bear some resemblance to Prints in mezzotinto, they have evidently never been prepared by the instrument called the cradle, (see Note (DD.) at the end of ENGRAVING,) on the use of which the velvet-like appearance peculiar to this method depends.*

Followers of Von Siegen in Germany

Among the German followers of Von Siegen, Bartsch enumerates *Johann Friederich von Eltz* and his pupil *Johann Jacob Kremer; Martin Dichtl*, a Painter and Engraver of Nuremburg; *Caspar von Furstenburg*, who flourished in 1656; *Johann Franz Leonart*, at Nuremburg in 1687; *Benjamin Blocke*, Painter, born at Lubeck, 1631; also in the following century, *Johann Jacobb*, born at Vienna in 1733, who died in 1797; and *Joh. Pichler*, born in 1766, at Botzen in the Tyrol, who died in 1806. He concludes his list with the name of a Professor of mezzotinto in the Academy at Vienna, *Vinzenz Kininger*.

Holland, and Flanders.

Among Dutch and Flemish artists are:

Artists' Names.	Where born and when.	Died at	A. D.
Johann Thomas	Ypern 1610		
Wallerant Vaillant†	Lisle 1623	Amsterdam	1677
Johann van Somer	Flourished about . 1625	An indifferent artist.	
Paul van Somer, settled in England, and died in London 1694.			
Abraham Blooteling‡	Amsterdam 1634		
Gerard Valck	Amsterdam 1606		
Johann van Gole	Amsterdam, about. 1660		
Johann Verkolie§	Amsterdam 1650		1693
Nicholas Verkolie	Delft 1673	Amsterdam	1746

Chalcography.

The Italian and French artists in mezzotinto are so few, and have made so little progress, that M. Bartsch has omitted them altogether. Among Italians, however, we may mention *Giuseppe Marchi*, who was brought from Italy by Sir Joshua Reynolds, and employed by him in painting his draperies. In France, the earliest attempts in mezzotinto were by *Jean Sarrabat*, born at Andely A. D. 1680. They are coarsely executed. We may add *Charles Maucourt*, born at Paris about A. D. 1743, who died in London in 1768; and *Nicolas Bounieu*, a native of Marseilles, A. D. 1744, and a Member of the Academy of Paris in 1775, whose Paintings are not much known in England. He scraped in mezzotinto from his own designs. *Boyer, Marquis d'Aiguilles*, was an amateur performer of some ability in this way as well as in Painting.

Very few Italian or French artists in mezzotinto

(62.) In our English list we include only the following names of remarkable artists:

English artists in mezzotinto

Artists' Names.	Where born and when.	Died at	A. D.
*John Oliver**	1616.		
William Faithorne the younger.	(See Art. 58. for his father.)		
Henry Lutterel †	Dublin 1650		
Isaac Becket	1653		
Edward Kirkall. (Art. 46.)	about 1695		
James M'Ardell‡	Ireland about .. 1710		1765
Richard Houston§			1775
Thomas Frye	born about 1724		
J. Finlayson	about 1730		
Valentine Green‖	Warwickshire .. 1739	In London..	1813
John Blackmore	about 1740		
Robert Laurie	about 1740		

* The seven Plates alluded to are "etched," says M. Bartsch, "in the ordinary way, and the apparent washes for his ground, &c. as well as the soft velvet-like masses for his draperies, &c. seem the result of a peculiar method of printing. Rembrandt himself placed the black colour on his Plates, and previously to impression, only cleared those parts of them which he intended to be in clear light. The degree of depth in the black, which was to appear in the impression, depended upon the greater or less quantity of colour left upon the copper. Hence we may trace the cause why several impressions of the same Print by Rembrandt are so dissimilar, and why scarcely any two of them are alike perfect." *Anleitung, &c.* vol. i. sec. 528.

† A Painter of some reputation, who, it appears, came to England with Prince Rupert, and was instructed by the Prince in the Art of mezzotinto scraping. *Vaillant* was taken to Paris by De Grammont, where he was much employed and enriched by his success in portrait. His brother, *Bernard Vaillant*, a portrait-painter in crayons, has left some mezzotinto Plates in the same style of execution.

‡ *Blooteling* visited England in 1672, or 1673. He was brought over by Loggan, (Art. 58.) together with *Gerard Valck*, his brother-in-law, whose Engraving of the "Duchess of Mazariu," Lord Orford pronounces to be "one of the finest Prints we have." Blooteling was an able and indefatigable artist, and excelled both in etching, Engraving, and mezzotinto.

§ A Painter of small portraits, well coloured and delicately finished. His son *Nicholas Verkolie* followed for some time the same line of Art, but afterwards painted some very able and justly admired historical pieces. In mezzotinto, he improved upon his father's style, and was much distinguished.

M. Bartsch might have named others equally worthy of mention with those in the above lists, both among his Countrymen and in the Flemish and Dutch School. Among Germans, *Christopher Weigel*, who flourished about A. D. 1650; *G. P. Rugendas*, born at Augsburg in 1666, celebrated for skirmishes and lion-hunts, together with his son *Christian; C. Heiss*, a Painter born in Suabia, about A. D. 1670, some of whose Prints are three feet by two, and upwards; *Bernard Vogel*, born at Nuremburg, 1683; *John Jacob Haid*, of Wirtemberg, born 1703, a Painter and pupil of Ridinger; (his sons *Gottfried* and *Elias*, born in 1730 and 1740, at Augsburg, the eldest of whom worked for Boydell, were respectable artists in this way;) *G. B. Goetz*, a Moravian Painter, born A. D. 1708; *J. V. Kauperz*, born in Stiria A. D. 1741, a scholar of James Schmutzer; and lastly, the two *Preistlers*, from Vienna and Nuremburg, whose works in this line are, it is true, inferior to their other productions.

Among Flemish and Dutch scrapers, *John van Hugtenburg*, born at Haerlem A. D. 1645, who died in 1733, was an admirable battle-painter, and has left some fine graphic specimens; *Vander Wilt* and *D. Koedyck* flourished about A. D. 1680; *Cornelus Trovet*, styled the Dutch Watteau, was born at Amsterdam A. D. 1697, and died in 1750; *Peter Schenck*, who scraped portraits of British Sovereigns, and one hundred views near Rome, and *N. van Haeften*, (see *Peintre Graveur*, vol. v. p. 445.) flourished about A. D. 1700; *P. van Bleck*, about A. D. 1730; and *F. Vander Cam*, about A. D. 1750.

* Nephew of *Peter*, (Art. 59.) and a much admired Painter on glass.

† "Was bred," says Lord Orford, "at New Inn, but abandoned the Law. He set himself to discover the secret, for so it then was, and laid his grounds by a roller, (*roulette*, see Note (GG.) at the end of ENGRAVING,) which succeeded tolerably, but not to his satisfaction. He then persuaded his friend Lloyd, who kept a printshop near the Strand, to bribe one *Blois* (who laid grounds for *Blooteling*, and was returning to Holland) to disclose the mystery. Lloyd for forty shillings purchased the secret, but refused to make it known to *Lutterel*, on which they quarrelled. Meantime *Isaac Becket*, a calico-printer, found means of inducing Lloyd (who was ignorant how to put his knowledge into practice) to accept of his services; and Lotterel having made the acquaintance of *Paul van Somer*, (Art. 61.) learned from him the whole process. Becket getting into difficulties was assisted by Lutterel, and they became intimate; but Becket, on his marriage afterwards to a woman of fortune, set up for himself, and employed Lutterel, who was the better draughtsman, to assist him. This was the introduction of mezzotinto into the English School.

‡ One of the ablest artists in this kind of Engraving. His Prints are very numerous. He scraped some admirable Plates of historical subjects after Rubens, Vandyke, Rembrandt, Murillo, &c., but chiefly portraits after Hudson, Reynolds, Zoffany, Vandyke, &c. Other natives of Ireland were popular artists in this line. *Thomas Beard*, who flourished about A. D. 1728, and *John Brooks* about 1742. *Charles Spooner*, an Englishman, resided in Dublin and scraped several Plates, dated from 1752 to 1762.

§ Another of the first rank in mezzotinto. His portraits after Reynolds are excellent, and his historical productions, chiefly after Rembrandt, very fine.

‖ Was bred to the Law; but after two years' study gave up the profession, and without the aid of an instructor arrived at a proficiency in mezzotinto which few have attained. The Prints after West of Hannibal and Regulus raised him into general admiration. His Works after West and other masters are numerous; as also portraits after Reynolds, Romney, Zoffany, &c.: and he shares the honour with *M'Ardell* and *Earlom* of giving consequence and variety to the particular style of Engraving to which these ingenious men devoted themselves. *Green's* Works amount to nearly four hundred Plates, the labour of about forty years. In 1774, he was elected one of the six Associate Engravers to the Royal Academy.

Engraving.

Artists' Names.	Where born and when.	Died at	A. D.
*Thomas Watson**	London.....	1750	1781
John Raphael Smith†	..... Derby about	1750	1811

The Fabers. A few other names will be found below of artists equally eminent, but whose date of birth is unknown.‡ *John Faber* the elder, from Holland, settled in England about A. D. 1695, and scraped many portraits highly interesting to the English collector. His son, *John Faber the younger*, surpassed his father, and was the ablest portrait scraper of his time, except John Smith. But the great modern improver of mezzotinto is our venerable Countryman, *Richard Earlom*, whose portraits after Rembrandt, Vandyke, Reynolds, and West, are in every good collection, together with historical subjects after numerous ancient and modern masters; and whose Works are well appreciated by M. Bartsch, as exhibiting considerable advancement in the Art by a judicious introduction of lines and dots never before attempted with success. (Note (EE.) at the end of ENGRAVING.)

Earlom.

Method of LE BLON, *by Printing* MEZZOTINTO *in Colours.*

Method of Le Blon. (63.) The impressions for Plates executed in the methods we have hitherto been considering are calculated more or less for giving effect to the chiaroscuro of a Picture; but as the chief excellence of many Paintings consists in a judicious arrangement of different colours, there was still wanting some discovery by which colour as well as form and shading might be transferred to chalcographic Prints. Mezzotinto, above all other methods, has the peculiar property of imitating the soft gradation of tint produced in shading with a brush; and this advantage must of course be still greater if a diversity of colours be superadded. The method of *Le Blon* (see Note (FF.) at the end of ENGRAVING) seems ingeniously calculated for obtaining this desideratum, and for multiplying copies of any Painting so as to correspond with it in every particular, and to present to the spectator's mind a perfect idea of the original.

Its fitness for gradations of colour.

M. Bartsch mentions several prior attempts at coloured Engravings; namely, by *Lastmann* of Haerlem, as early as the year 1626; by *Peter Schenck* of Amsterdam in 1680; and by *Taylor*, an English engineer in the service of Frederic the Great: but these attempts were made only from etched lines, and by means of one and the same Plate. Coloured mezzotintos have been also tried by means of one Plate; but these, like the former, have proved failures. Impressions so obtained do not possess the proper combination of tints, especially in the lights, where many traces of white paper may constantly be detected. The Prints, consequently, from such coloured single Plates continually require retouching by the artist; whereas those obtained in Le Blon's manner by means of three and sometimes four successive Plates, are almost wholly and uniformly covered with colour.*

Lastmann.

Chalcography.

Schenck.

Taylor and others.

Their attempts with *one plate* unsuccessful.

French Method for CHALK *Engraving.*

French imitation of chalk drawings. (64.) This method, in imitation of drawings in chalk of academic studies and subjects, is an invention shared by three French artists: *G. E. Demarteau*, born at Liege in 1722,† who died at Paris A. D. 1776; Jean Jacques François,‡ born at Nancy in 1717, who died A. D. 1769; and *Louis Bonnet*, a native of Paris, about A. D. 1735. Bonnet executed several Prints in this way chiefly after Boucher.

The means and instruments employed in this style of Art (see Note (GG.) at the end of ENGRAVING) are not adapted to express the delicate details of a Picture, and are employed rather for producing bold broad lines and coarse shadings, than for imitation of drawings finely executed or highly finished. There are, however, few or no methods of Engraving so successful as this in accomplishing the purpose intended. Many Prints of this kind so closely resemble drawings in red chalk that they might almost be mistaken for their originals.

Perhaps the most deservedly celebrated artist in this way is an amateur gentleman of Amsterdam, born there in 1732, *Cornelius Ploos van Amstel*, who has executed a numerous and interesting collection of Plates imi-

P. van Amstel.

* His Prints are numerous and excellent in this way, though he died at the premature age of thirty-one. He employed his scraper on portraits after Reynolds, Lely, Dance, West, &c., as well as on various subjects after Rembrandt, Coreggio, and other masters. *James Watson*, his relation, (a younger brother, according to M. Bartsch,) was no less distinguished. His Prints after Reynolds are in great esteem; as likewise other portraits after Vandyke, Gainsborough, Romney, &c.

† Son of Thomas, the celebrated Etcher and Painter of English landscape, called Smith of Derby, to distinguish him from the Smiths of Chichester, his contemporaries. The portraits by *Raphael Smith*, after Reynolds, Northcote, Gainsborough, and Sir Thomas Lawrence, are particularly admired.

‡ Artists' Names.	Flourished A. D.	Subjects and Masters.
John Smith	About 1700	Fine portraits after Kneller, and various subjects after Coreggio, &c.
Robert Williams of Wales,	About 1715	Portraits after Vandyke, Kneller, &c.
George White	About 1720	See Loggan. (Art. 58.)
Edward Fisher	About 1765	Fine portraits, chiefly after Reynolds.
Charles Phillips	About 1765	After Mola, Rembrandt, &c.
John Dixon	About 1770	Fine portraits, chiefly after Reynolds.
William Pether	About 1770	Fine plates after Rembrandt, &c.
Philip Dawe	About 1771	Several subjects after Morland, &c.

* *James Christopher le Blon*, born at Frankfort in 1670, is said to have been a scholar of Carlo Maratti. He accompanied Bonaventura van Overbeck to Amsterdam, and was there employed in painting miniature portraits. He visited England and perfected many large Pictures according to his new method, which may be allowed, says Lord Orford, who knew him, to be "very tolerable copies of the best masters." But this ingenious projector was unsuccessful with the British Public. He published, in 1730, a detailed account of his process, and died ten years after in an hospital at Paris.

M. Bartsch mentions *Jean Fabian Gautier* of Marseilles, and his son *Edouard Gautier Dagoty*, born A. D. 1745; together with *Jean l'Admiral* at Leyden, and *Carlo Lasinio* a Venetian, as successor to Le Blon in prosecuting this ingenious discovery. Le Blon, however, the discoverer, has produced the best specimens, but better might certainly be executed. He employed a number of Engravers for completing his Plates who did not always come up to the conceptions which we take for granted Le Blon as a clever colourist entertained. In most of his pieces some fault appears in the drawing, or in the chiaroscuro, or in the harmony of colour, and often in all these three particulars united. If any good Painter, as skilful with the scraper as in the use of his palette, should undertake a similar enterprise, far superior results might be attained.

† *Giles Demarteau the younger*, a nephew of the above, born at Liege about A. D. 1750, followed the style of his uncle and preceptor with some success. *D. P. Pariset*, born at Lyons in 1740, another pupil of the elder *Demarteau*, was employed in England in 1767 by Ryland, and engraved the Plates from drawings by the great masters published by Rogers. He also engraved "Portraits of English artists" after designs by Falconet.

‡ *François* is said to have been the first who engraved at Paris in this style, and to have been rewarded for his ingenuity by a pension of five hundred livres from the French King.

Engraving.

tating crayon drawings by the most distinguished Dutch masters.

English Method by Dotting.

English improved method by dotting.

(65.) This is an improvement on the preceding method, inasmuch as it imitates with perfect accuracy and clearness the most highly finished chalk drawings. In respect of graphic execution it is far preferable, since the needle and the burin can be much more conveniently and dexterously managed than the roulette. (See Note (HH.) at the end of Engraving.) The dots also are much finer, are more closely ranged together, and if worked judiciously on the metal have a clearer effect than in the French style. The whole work has the appearance of a finely stippled miniature; and attempts have been made, not unsuccessfully, to take coloured impressions from Plates of this kind, which have all the finish and delicacy of miniature-painting.

Bylaert.

The discovery of this method of Engraving, which is traced to the year 1760, originates properly, says M. Bartsch, from *Jacob Bylaert*, a Painter and Engraver at Leyden, who has published in a little Treatise the

Bartolozzi

elements of this Art. But as *Bartolozzi*, (Art. 50.) who then resided in London, was one of the first to practise it, and to enrich the invention with improvements of his own, exhibited in numerous fine specimens which he shortly after published, he has been regarded as the inventor. Not all the dotted Engravings, however, which bear his name are entirely from his hand. On account of the unexampled demand for his performances, he could not complete his numerous orders without assistance, and without employing several of his scholars, whom he allowed to complete many Plates (previously etched by himself) by the process of dotting. Among them was B. Pastorini, an Italian employed by Bartolozzi in 1770. Also *Schiavonetti* already mentioned. (Art. 59.)

Ryland.

William Wynne Ryland, whom we have already mentioned, (Art. 58.) was eminent in this way, and published upwards of two hundred Plates, which for delicate finish exceeded all former attempts. Some of them, printed in coloured inks, were, according to M. Bartsch,

Smith.

not inferior to miniature-painting. *Gabriel Smith*, who had learned Chalk Engraving at Paris, practised it in this Country, with the assistance of Ryland, after the

Menageot

improved manner. *Robert Menageot*, born at Paris A. D. 1748, worked for Boydell after Coreggio, Guido,

Ryder.

Loutherbourg, &c. *Thomas Ryder* flourished about 1790, and engraved in this style after J. Wright, West, Opie, A. Kauffman, Shelley, &c. Not to omit *Joseph*

Strutt.

Strutt, born about A. D. 1745, author of the *Dictionary of Engravers*, who has executed several neat and delicate prints of this kind.

Burke and other moderns.

Thomas Burke, whom M. Bartsch styles a "firm draughtsman," published between the years 1770 and 1780 several beautiful specimens in this (then novel) style. M. Bartsch names among his own contemporaries in Germany *Henry Sinzenich* of Manheim; *Charles Hermann Pfeiffer* of Vienna; together with *F. John*, a pupil of the latter.

Aquatinta, or *Imitation of Washed Drawings in Bistre.*

Imitation of drawing in water-colours.

(66.) This is another graphic invention for the purpose of imitating another kind of drawings; those, namely, which have been executed with brushes of camel's hair in Indian ink or bistre, by the process technically termed *washing*. There has been much disputing among artistic biographers as to the inventor of this Art. M. Bartsch inclines to the opinion, that it originated in France with a distinguished author and amateur Engraver, the *Abbé de St. Non*, who, careless of any gains to himself by the discovery, communicated it to his friend, *Jean Baptiste le Prince*, a French Painter of some celebrity, with a view of benefiting that artist. Le Prince, during his lifetime, published in 1780 an advertisement, offering for a specified sum to give instructions in the unknown process; and at his death, which happened in the following year, he bequeathed the secret to his niece and heiress, from whom the French King, (see Note (II.) at the end of Engraving,) in order to impart it generally to the Academy and to the Public, purchased it by granting her a pension. Beside St. Non and Le Prince, several artists, both of France and other Countries, have been named as the inventors; but their methods of attaining the same object have been considered so inferior to that of Le Prince, as to be superseded by the latter, as soon as it became publicly divulged.*

Chalcography.

St. Non and others.

The most distinguished names in this style of aquatinta are

Artists in aquatinta.

Artists' Names.	Where born and when.
Richard Abbé de Non...	Paris.....1730
Paul Sandby†.....	Nottingham 1732

* M. Bartsch, quoting from Rost's *Handbuch*, (band viii. s. 230.) mentions three Plates engraved by *St Non* after Robert, in washes of black and brown, as early as A. D. 1766, consequently two years earlier than any of Le Prince's productions: also five series, consisting of one hundred and fifty Plates, executed by the same hand, in Le Prince's best manner, entitled *Fragmens choisies dans les Peintures et les Tableaux les plus interressans des Palais et des Eglises d'Italie*, which were published between A. D. 1772 and 1775, nine years before the death of Le Prince. Hence the doubt arises whether Le Prince really was the inventor, and the certainty that if he was he did not conceal the secret from St. Non.

Writers upon Art also bring forward the French artists, *Barabé*, *Delafosse*, *P. F. Charpentier*, together with *P. Floding*, a Swede; *A. Pond* and *C. Knapton*, our Countrymen; *J. A. Schwerkard* of Nuremburg, and *Ploos van Amstel* of Holland, as claiming the discovery. These artists, however, either made ingenious combinations of methods previously known, or what they did invent fell very short of Le Prince's method. Pond and Knapton, in 1734 and 1735, published imitations of drawing in bistre; but in these the outlines alone are etched upon the copper, and the washes have been put in by means of two, three, or even four wooden blocks in the style of Prints in chiaroscuro. (Art. 28. and Note (P.) at the end of Engraving.) In the years 1758 and 1759 several Plates were executed for the Work of Ant. Dom. Gabbiano, at Florence, entitled *Racolta di Cento Pensieri*, fol. 1762. These Prints represent lightly washed drawings, put in with one, or at most with only two weak tints. But these tints are produced without any intervening substance, and by pouring the solution of aquafortis on the pure copper. A few dark shadings are introduced with the burin or dry point, and occasionally with small rasps or graining tools. These Prints were executed by J. A Schwerkard, in conjunction with Santi Pacini, Carlo Gregori, Antonio Cioci, Andr. Scacciati, Gio. Bat. Galli, Ignaz Hugford, and Vincenzio Vangelisti, Peter Floding and Ploos van Amstel, in one or other of the two methods last mentioned. Stapart, an amateur, published at Nuremburg, in 1773, a Treatise entitled *The Art of Engraving with a Brush on Copper.* (See Note (II.) at the end of Engraving.)

† *Paul Sandby* is a truly British artist, one of those who first convinced Englishmen that the features of their own native island are quite as capable of pictorial effect as the scenes on any foreign clime whatever. At the age of sixteen he was employed as draughtsman under Mr. David Watson, to complete a survey of the North and West parts of the Highlands of Scotland, at the instance of the late Duke of Cumberland. Here he occasionally obtained leisure from drawing plans to sketch the wild and terrific scenery around him. These *coups d'essai* he afterwards etched in small Plates.

Engraving.

Artists' Names.	Where born and when.	Died at	A. D.
*J. Bapt. le Prince**	Paris.....1733	Paris	1781
Johan Gotheb Prestel†	Grunebach in Swabia 1739	Frankfort	1808
Maria Catharine Prestel†	Nuremburg.....1747	.....	1794
William Kobell‡	Manheim.....1766		
Carl Kunz§	Manheim.....1770		
Thomas Girtin‖	London.....1775	.....	1802

AQUARILLA, *or Imitation of Drawings washed in different Colours.*

Improved imitations of drawing in water-colours.

(67.) This style of Engraving is a further attempt to imitate the brush of the painter in water-colours. Like the invention of Le Blon, (Art. 63.) it requires as many Plates as there are simple colours to be used. (See Note (KK.) at the end of ENGRAVING.) It is characterised by a decided superiority over the last-mentioned process, in one remarkable particular, namely, in being capable of representing those shadows of a drawing which vanish imperceptibly into lighter and thinner tints, or which gradually disappear in the lights: an effect not producible by any other method of imitating washes in water-colours. The discovery was made in 1762, by *Pierre François Charpentier*, an Engraver at Paris, born at Blois in 1730. It remained for a long time the sole property of French artists, few of whom have been induced to communicate their modes of working. Among the most remarkable are *François Janinet*, born at Paris, in 1752, and his pupil *Charles Melchior Descourtis*, a native likewise of Paris, in 1753. *Charles Benasech*, who was born in London, but resided chiefly at Paris, and whose profession as a Painter qualified him peculiarly for executing Prints of this kind, has produced several highly skilful specimens.

Lithography.

LITHOGRAPHY.

(68.) Having enumerated and remarked upon the various kinds of Prints from wood and from metal, we now come, in conclusion, to the third material which modern Art has called into similar use; and proceed, as was proposed, (Art. 12.) to give some account of impressions from stone.

Lithography.

Alois Senefelder,* whose name will long be conspicuously memorable in the annals of modern discovery,

Senefelder

His talents and rising reputation introduced him soon after his Northern expedition to the notice and patronage of Sir Joseph Banks and Sir Watkin Williams Wynne. By Sir Joseph he was invited to accompany him in a tour through North and South Wales, and by Sir Watkin was employed to design the most interesting parts of Welsh landscape. He subsequently engraved these views in aquatinta. Sandby was one of the original Members of the Royal Academy in 1768, and was the same year appointed chief drawing-master to the Royal Military Academy at Woolwich, an office which he held until his death.

* *Le Prince* studied Painting under J. M. Vien and F. Boucher. He obtained some reputation at Paris, and travelled to Russia, where, during a residence of several years, he employed himself to design the various costumes of that vast Empire, and returned to Paris with a numerous collection of drawings, from which he either completed Paintings or executed Prints. His designs were much admired, and gave exercise to the talent of several other Engravers, his Countrymen.

† This lady was the wife of the preceding artist and aided him in some of his best Plates, particularly in landscape. Some disagreement occasioned her to separate from him and come to England in 1786, where she executed some Plates, which in this style have not been surpassed. They are spiritedly etched, and finished in aquatinta with delicate and picturesque effect. Her husband had studied Painting at Venice under Ginseppe Nogari, and Engraving under Wagner. (Art. 50.) He resided chiefly at Nuremburg, where he worked in various styles. His Prints in aquatinta are numerous.

‡ *William Kobell* was a pupil of his father *Ferdinand*, from whom he learnt to engrave and paint in landscape. Both were eminent in the line they adopted; but William was particularly happy in representing the peculiar style of the principal Dutch masters, after whom he executed a variety of Plates. He also engraved in the crayon manner.

§ Painter of cattle and landscape, and distinguished for many clever Engravings in this style, particularly for three large cattle pieces after Henry Roos, Paul Potter, and A. Vandevelde: *chefs-d'œuvre* in this way.

‖ Future writers on English Art will have the duty of recording the rise and advancement of water-colour Painting in this Country, to a degree of excellence not hitherto considered attainable, until the talent and perseverance of a numerous School among the contemporaries or fellow-students of *Thomas Girtin*, called it forth. No true lover of the Arts in England but must be familiar with the names and merits of the "Society of Painters in Water Colours." We purposely abstain from remarks on living genius, but must observe of Girtin that he was one of the earliest and most successful improvers of the Art in question. For this purpose he found no necessity for foreign travel, but studied nature, English nature, at home. Like Rembrandt, Cuyp, Ruysdael, Hobbima, Paul Potter, and other great colourists of the Flemish and Dutch Schools, he found abundant exercise for a powerful mind, in scenes which pass unheeded before the vacant eyes of ordinary men. He visited Paris for his health in 1802, and made sketches of certain streets and public buildings of the French Capital, which, at his return to London, he etched and engraved in aquatinta. His death, however, that same year, removed a valuable contributor to this department of Engraving, and deprived water-colour Painting of one of its ablest founders.

Among other English artists, distinguished in aquatinta, we might mention *James Bretherton*, who flourished from 1770 to 1790, and whose son *Charles*, an early victim to consumption, executed several Plates of great merit, and many charming designs. About A. D. 1790 likewise flourished *J. Baily*, whose landscapes and views in this style of Engraving are highly creditable.

* Peter Senefelder, the father of the inventor, was an actor at the Theatre Royal in the city of Munich, and intending to bring up *Alois* to the profession of the Law, placed him at the University of Ingolstadt. The dramatic inclination, however, of young *Senefelder* displayed itself in private theatricals; and a little Comedy entitled *Die Mädchenkenner*, which he composed in 1789, gained him some applause and profit. This success, and the death of his father, which straitened his circumstances, determined him to quit the University and attach himself to the Theatres. In this precarious pursuit he passed two years. His second publication of a Play being too late for the Easter book fair at Leipzig, produced but barely sufficient to pay for the printing, during which he had passed much time at the printing-office in anxious endeavours to accelerate the Work. His active mind was here first directed to the business of the pressman. "I thought it so easy," he observes in his Work on Lithography, "that I wished for nothing more than to possess a small printing-press, and thus to be the composer, printer, and publisher of my own productions." After a variety of experiments, during which he was obliged to try methods which he found less expensive and more manageable, he employed, among other materials, blocks or slabs of Kelheim stone, and on these endeavoured to etch his composition, but with very imperfect success. "I had just succeeded," says he, "in my little laboratory in polishing a stone plate, which I had intended to cover with etching ground, in order to continue my exercises in writing backwards, when my mother entered the room, and desired me to write her bill for the washer-woman, who was waiting for the linen. I happened not to have even the smallest slip of paper at hand, as my little stock of paper had been entirely exhausted by taking proof impressions from the stones; nor was there even a drop of ink in the inkstand. As the matter would not admit of delay, and we had nobody in the house to send for a supply of the deficient materials, I resolved to write the list with my ink prepared with wax, soap, and lamp-black, on the stone which I had just polished, and from which I could copy it at leisure. Some time after this I was going to wipe this writing from the stone, when the idea all at once struck me to try what would be the effect of such a writing with my prepared ink, if I were to bite in the stone with aquafortis; and whether, perhaps, it might not be possible to apply printing ink to it in the same way as to Wood Engravings, and to take impressions from it."

The result of this incident was the discovery of the Art of Printing from stone. Unable, however, from the want of pecuniary means, to prosecute his invention, Senefelder took the resolution of enlisting himself in the service of the Elector (afterwards King) of

Engraving.

was the ingenious originator of this new opening for the exercise of graphic talent. The comparative cheapness of the materials used, the rapidity of Lithographic execution, the facility with which the hand of any good draughtsman, accustomed to the proper use of a pen or crayon, may transmit his efforts to the press, and obtain a faithful and identical delineation, together with the almost inexhaustible number of impressions, render this form of Engraving worthy of even greater and more general cultivation than has hitherto been bestowed upon it. (See Note (LL.) at the end of ENGRAVING.) It would be absurd to say that Engravings of the Lithographic School are ever likely to supersede those upon wood or metal. Each of these three departments in the Art has its peculiar charms, perfections, and advantages. As well might it be maintained that the several walks of Poetry interfere with or supplant each other; that the sonnet, for example, or the elegy, or the ode, or the wood-notes wild of Shakspeare, or the fascinations of Byron, are calculated, with readers of taste and judgment, to displace the grand and regularly sustained epic of Milton, and his great models in ancient song. The Lithographer of talent, in like manner, claims our admiration, without in any degree diminishing our attachment to Vostermann, Pontius, Durer, Nanteuil, Masson, Audran, Woollet, or Strange.

Litho-graphy.

We have here again to observe, as we did in allusion to Painting in water-colours, (see last Note to Art. 66.) that since Lithography is one of the "marvels" of our own times, and since those Lithographers who have raised it to eminence among the Fine Arts are our own living contemporaries, we forbear comment on their productions, and must leave to future Encyclopædists and biographers the duty of recording the ingenious and meritorious labours of a large class in this modern department of Engraving. In accordance, too, with that brevity to which our limits constrain us, we can make only a few remarks on the rapid progress of the Art, and state the several purposes to which Lithography has been applied.

1. Imitation of chalk drawings.*
2. Imitation of drawing with a brush or hair pencil.
3. Imitation of wood-cuts.
4. Imitation of prints in chiaroscuro, for which several stone plates are employed.
5. Imitation of prints in mezzotinto.
6. Impressions in gold or silver.
7. Transfer of wood or metal Engravings and of letter-press to the stone for Lithographic impression.
8. Transfer of manuscript or *autography*.
9. Methods of *indentation*, where the stone is cut or engraved.
10. Method by the use of a point or needle, as in etching.
11. Method resembling aquatinta. (Art. 66.)

Various applications of Lithography.

The ingenuity and perseverance of Senefelder are sufficiently manifest from the number and variety of these several applications of his discovery, all of them originating with himself. With the modesty of true genius he makes no boast of having perfected his Art, but in his book on the subject describes it as in an infant state, capable of being matured both in utility and beauty by the fostering industry of future hands. Senefelder being much better versed in *chemical* than in *pictorial* affinities, his labours refer to the sort of materials to be used rather than to the niceties and delicacies of graphic execution.

* For some account of the peculiarities in this and the following processes, see Note (MM.) at the end of ENGRAVING.

Bavaria, as a private soldier in the artillery, for which he was to receive a bounty of two hundred florins. With this small sum his enterprising spirit led him to imagine that he would ultimately bring his new Art into practice, and secure himself an honourable competency and reputation. Not being a native, however, of Bavaria, he was disappointed in this object, and was still suffering from the disappointment, when he met with a musician of the Elector's band, a former acquaintance, named Gleissner, about to publish some music. Senefelder induced him to produce it according to the new method. In less than a fortnight the composing, writing on stone, and printing of twelve songs was accomplished, and one hundred and twenty copies taken at the expense of about thirty florins. The entire impression in a short time sold for one hundred florins; thus leaving a profit of rather more than two hundred per cent. As a further encouragement, a copy of the Work was laid before the Elector Charles Theodore by Count Torring, and Gleissner received a present of one hundred florins, with the promise of an exclusive privilege for this method of printing. This privilege, in 1799, was at length granted to Senefelder for fifteen years, who now employed his two brothers, Theobald and George, and two apprentices, and no longer made a secret of the process. In 1800, a circumstantial description of it was lodged at the Patent office in London, and in 1803 with the Government of Lower Austria. M. Antoine André, an extensive music-seller, was among the foreigners who visited Senefelder's establishment, and a partnership was begun between them, in consequence of which Senefelder visited this Country about 1802 with M. Philip André, brother of the preceding; but the result was not answerable to expectation. During a residence, however, of seven months in London, Senefelder set himself to acquire a fundamental knowledge of Chemistry, in addition to that of several contrivances which he found subsequently valuable towards the improvement of his discovery. Some attempts in London at printing a few pen-and-ink sketches drawn on the stone by West, Fuseli, Stothard, and other Academicians, were published; but no further progress was made, except in the application of the Art to military uses by the late Colonel Brown, then Quarter-master General, authorizing the purchase of the secret for £100 from Volweiller and Kergenrader, two Germans, who had been equally unsuccessful with André in their endeavours to introduce Lithography among the Arts in England. By the assistance of a pressman, whom these persons had employed, a Lithographic press was established at the Horse Guards; and the first map (a sketch of Bantry Bay) was produced in the beginning of the year 1808. Since that period Lithography has rapidly spread in this Country, not only for the official purposes, as well nautical as military, just mentioned, but for those also of the Fine Arts; and the establishment of Hullmandel in London has maintained a more or less successful rivalry with that of Englemann and Coindet at Paris, into which latter city it had been introduced by M. André in 1807, from whom the secret was purchased by several artists. We refer our readers to M. Englemann's *Manuel du Dessinateur Lithographique* (8vo. Paris, 1824,) for many able specimens, together with a very interesting exposé of the Art; and we only venture to observe, that if the French Lithographers have sometimes exceeded us in prints of this kind, our failure is attributable to a very superior command of the pen or crayon among the generality of French draughtsmen.

But to return to Senefelder. After endeavouring, with the assistance of his above-named brothers, to establish himself at Offenbach, where, in conjunction with André, he had availed himself of the Electoral patent, he found himself at his return from London necessitated to break up his partnership with André, and he removed with his brothers from Offenbach to Vienna, in hope of better fortune. At Vienna, in 1803, he succeeded in obtaining a similar patent throughout the Imperial States; but at Vienna, also, his expected resources failed him, and to clear himself from debts he sold his patent, in 1806, to M. Stein. Having thus honourably satisfied his creditors, he returned to Munich, where, in 1809, he received to his own great satisfaction, as well as that, we think, of our readers, the appointment of Lithographer to the Royal Commission of Customs. Thus removed, says M. Bartsch, from scenes of continued failures and crosses to a condition of comparative prosperity, he has employed his leisure to make fresh improvements in his Art, and to publish a complete manual of Lithography, in which (most disinterestedly, and, in a mercantile sense, to his own disadvantage) he has imparted every particular relating to the developement and practice of his invention.

Engraving.

The principal obstacles to the progress of this Art at its commencement have been, 1. The opposition of professional persons jealous of its advancement. 2. The disappointment of practitioners who, from inexperience, have failed in their first attempts. 3. The numerous impressions taken by incompetent printers, which have been regarded by the Public as specimens of the Art. All of these obstacles are surmountable by skili and perseverance, and disappear in proportion as the number of Lithographic establishments have increased throughout Europe. In 1809 there were six Lithographic printing-houses at Munich besides Senefelder's, notwithstanding his patent from the King of Bavaria. M. von Aretin and M. von Mannlich, Director of the Gallery at Munich, together with Professor Mitterer, of that city, have been early instrumental in leading the new discovery nearer to the precincts of Science. Professor Mitterer, in particular, has been distinguished for introducing a method of giving additional firmness to the Lithographic crayon, and by his invention of an improved Press, which Senefelder pronounces to supply every thing that can be desired in regard to power, despatch, and convenience. In 1807 M. Delarmé, of Munich, had founded Lithographic Presses at Rome, Venice, and Milan; and M. André introduced the Art at Paris: but it seems not to have obtained popular notice in France till after the more recent exertions of the Count Lasteyrie and M. Englemann in 1814, at which time it was adopted in this Country for despatch of business in most of our Government offices. From the Institution under Englemann at Mulhausen, also, in 1814, called *la Sociélé Lithographique de Mulhouse*, Lithographic Printers were supplied for the Royal establishment at Madrid, for that of Messrs. Constans and Motte at Paris, and for that of Hullmandel in London. The city of Lyons also obtained its Lithographers from the same School. In Vienna, observes M. Bartsch, Senefelder's patent (obtained from the Emperor in 1803) was purchased by M. Stein. "A large Press in Berlin was established by Major von Reiche. Another has existed in Petersburg for many years, but is now particularly cultivated by M. von Schilling. The Art has reached even Philadelphia; and, what is yet more remarkable, has travelled to Astrakan, where it has met with a favourable reception"*

Progress of the Art, notwithstanding the obstacles at its commencement.

Lithography.

* Lithography was introduced into Studtgard by *Strohhofer*, assistant of Charles Senefelder, brother to the inventor. He became acquainted with M. Cotta, and through him with M. Rapp, author of a Work entitled *The Secret of Lithography*, in which the importance of the Art to the Public was first fairly estimated. Since 1803 the Chemical Printing-press of M. Stein, and since 1816 that of M. Gerold, have been established at Vienna; but are surpassed, in the opinion of M. Bartsch, by that of the General Quarter-master Staff, under the direction of the Chevalier Joseph von Kohl.

ERRATA.

Page	Column.	Line
788	2,	8. *for* Guiseppe, *read* Giuseppe.
788.	2,	24. *for* Raffaelle, *read* Raffaelle.
789.	1.	9th, *for* Guiseppe, *read* Giuseppe
782.	2,	9 from the bottom, *insert* dear after it.

Notes on Engraving.

Note (A.)

When, in this manner, the device of the medal or coin has been given to the matrix, the artist proceeds to engrave the letters of the legend, &c. by means of small steel punches very sharp and well tempered. He finishes, by the same means, the mouldings of the border, the engrailed ring, &c. The matrix for coins being shallower than that for medals, is sometimes made, like the creux of a seal, (Art 2.) without punching, except for the letters. Coins have, consequently, less relievo than medals, and counters less than either.

The expression matrix, or womb, is sufficiently indicative of the ultimate process of coining, by which the *planchet*, or circular plate, of precious metal is received within a steel ring or collar of a corresponding diameter, and becomes forcibly stamped and moulded into its intended form by pressure on all sides against the steel intaglio. (See NUMISMATICS, p. 619.) By the foregoing statement it is by no means pretended that the first artificers would not be far inferior in point of mechanical accuracy and facilities (though not dissimilar in the general result of their process) to those of future Ages.

Intaglio, what.

Alberti's definition of *intaglio*, (see *Dictionnaire Italien-François*,) which appears to correspond with ours, (see *Miscellaneous Division*, for the words ENTAIL, INTAGLIO,) seems at variance with his other terms *intagliatore*, and *intagliare*, in reference to the graphic Art; signifying by *intagliatore* not only an Engraver *en creux*, but also *quel professore che intaglia in legno disegni per istamparli*, consequently signifying an Engraver, also, of *raised work*, or *cameï*: while *intagliare*, the verb, he defines *formare checchessia in legno, o marmo, o altra materia col taglio degli scarpelli*, &c. It is to be lamented that artists are seldom linguists, and that with respect to a distinction, like this before us, so palpable and so decided between two methods of working diametrically opposed to each other, no absolutely precise terms are to be found. If we could muster up the same courage for coining English words as our brethren literate and illiterate of America, here would be a fine opportunity. We will only venture, however, to suggest the general use of a Shakspearian term, (see *Miscellaneous Division* for the verb CAVE,) and would recommend Engraving *en creux* to be called *caved work*; Engraving in relievo *raised work*.

To the reader who has opportunity, and is curious to see the modern advancement of the Art of coining by means of machinery, we recommend a visit to the Royal Mint of London. For some account of English coinage, we refer him to our Essay on NUMISMATICS, p. 643, 644. Mr. David Macpherson, in his able Work, the *Annals of Commerce*, vol. i. p 266, enumerates various towns (to the number of more than eleven) in England to which the privilege of coining was restricted by King Athelstane. He remarks that at that time (about A D. 930) artificers would of course be found in each town capable of working in silver and engraving the dies. "We find," says this author, "even in the more remote Kingdom of Scotland at this time a case for containing the Gospel at St. Andrew's. It was covered with silver, most probably by a native artificer, and had two Latin verses inscribed upon it by a Scottish Engraver."

Die-Engraving in England.

A. D. 930.

Canute increased the number of coining places to thirty-seven. In A.D. 1207, during the reign of John, Mr. Macpherson enumerates sixteen cities and towns for this purpose, but subjoins in a note, that so many mints were established in many other places that a complete list would perhaps be impossible. The Yutes, Saxons, or Angles, surpassed all the other Northern nations in the Art of Coining: an important point in the progress of civilization to which the Scandinavians had not attained in the Xth Century. In the reign of our Ist Richard, and of John, the Germans were distinguished for this Art. Those Monarchs, with the design of improving the coinage of England, sent for artificers from the East-Country, or Germany, called Easterlings, and hence the well-known term *sterling*, applied to English money ever after. The coinage till Edward III. was chiefly of silver. In that reign, (Jan. 22. 1344,) money of three sizes was ordered by the King and Parliament to be coined of gold. *Annals of Commerce*, vol. i. p. 283. 307. 374. 530.

A. D. 1207.

A. D. 1344.

Note (B.)

A description may be proper here of the instrument itself. It is of steel, more or less tempered according to the material to be engraved by it. For Engraving on steel, for example, the burin must be of softer metal than for working on copper: because if too hard, the point will snap and break off continually. The Italian name *bolino*, or *bulino*, for the graving tool, may, as a diminutive, be possibly derived from the Teutonic *beyel, beil*; Belg. *byl*; A.G. *bill*, which Skinner translates *securis rostrata*; denoting the well-known instrument of the woodman, called a *bill*-hook. To the beak of a long-*billed* bird the *bolino* certainly bears remarkable resemblance; as does its wooden handle to the shape of the bird's head. Also the ancient *bolla, bullu*, or seal, which would doubtless exhibit the work of the *bolino*, or graver, may have the same common Teutonic origin. (Evelyn, *Sculptura*, p. 22.) Likewise *bill*, or *billet*, for a small engraved tablet or note. (See *Miscellaneous Division, in loc.*) That the French name *burin* for the graving tool, as well as the Spanish and Portuguese *boril* or *buril*, have the same etymological source with the Italian *bolino* or *bulino*, will be admitted, from the frequent substitution of *r* for *l*. (*V.* Skinner, *Prolegomena, in loc.*) The burin may be considered as a kind of chisel, having its handle rounded, so as to lie conveniently in the hollow of the hand. Its other extremity, or blade for cutting lines in the metal, is a small quadrangular steel bar, from three to five inches long, of which a transverse section would sometimes be square, but would commonly have the shape of a lozenge, with two equal and two unequal angles. One end of this bar is firmly fixed in the handle, the other end is sloped to a point at one of its edges, and the angle both of the slope and of the edge made more or less acute in proportion to the depth or to the breadth required for the lines on the metal. The instrument is held as shown in plate i., while its point with its slope upwards is inserted into the copper, silver, or other surface, and forced forward in a direction nearly parallel to the plate. During its passage along the metal, the burin cuts out a thin, thread-like portion of the engraved substance, which, like the shaving before a carpenter's plane, curls up before the edge of the tool. The thread of metal varies more or less in thickness according to the breadth and depth of the line or furrow ploughed by the graver, and there will always be left on the side of this furrow a certain portion of the metal which has been forced up, and remains in a rough state above the surface. This is called the *burr*, and must be smoothed off by means of another steel instrument, termed the *scraper*, (see plate i.,) in a prism-like form, having three sharp edges. The scraper is also useful for erasure of errors. After the effectual application of it the erroneous lines entirely disappear, but an excavation, sometimes considerable, will have taken place in the scraped part; which must again be restored to a level with the surrounding surface, and beaten out by the strokes of a small hammer on the back of the plate. It is evident, with reference to the future print on paper, that the more deeply the lines are engraved on the metal, the greater must be the quantity of colour required to fill them, and consequently, the richer will be the impression. The Engraver, therefore, varies the form of his burin according to his fancy and the nature of his work. If deep, narrow lines are to be engraved, the blade used is proportionally thinner, according to the depth required, and its point more sloping, according to the fineness of his lines. On the other hand, if broad, shallow lines are to be drawn, the blade used is of proportionate thickness and of rectangular appearance, while the slope at its point must terminate less acutely. It is asserted by Adam Bartsch, in his Guide to Engraving, (*Anleitung zur Rupfer-stichkunde*,) 8vo. Vienna, 1821, that plates wrought with high burins (by which he means such as terminate in an acute slope) produce spirited, rich, and splendid impressions; whereas those works on which only obtuse-angled blades have been employed, come out, even in the proofs, grey, flat, and inanimate. "The commonest burins," observes this intelligent artist and useful writer on Art, "are neither quite rectangular nor very rhomboidal, but are what Engravers term half-high, *i. e.* with an angle of 70°. The burin during the operation of Engraving requires to be sharpened frequently on a fine whetstone, used with oil: for if its point and edge be not perfectly sharp, the operator can neither produce a clean nor a fine stroke, nor enter the copper to a sufficient depth. Sometimes this instrument takes a curved form, with the concave side of the curve towards the plate. This sort of burin is used for dotting. Note (GG.) Otherwise the curve takes, in general, a quite opposite direction, namely, with its concave side upwards, in order that the instrument may pass with facility along the copper, and that such lines as terminate insensibly in a point, may be well executed. Sometimes its lower edge (*viz.* that employed next the metal) is rounded. Sometimes it is chisel-like and squared." vol. i. p. 5—7. (See plate i. for sections of different gravers.)

The burin described.

The size an angle of the burin regulated by the kind of work to be executed.

Our English name for this instrument takes its derivation, like the German *grabelstich*, from the Greek γράφω: yet it is remark-

Notes on Engraving.

able that no Greek name for it is extant similarly derived. Its Greek appellatives are γλυπτήριον, or ἰγκόστιον. It may here be worth observing that in our authorized translation of Scripture, the expression "graven image" should frequently be "molten image."

Note (C.)

The Ancients must have known fully as well as any artist of the XIVth or XVth Century, or of our own times, the difference between the seal and the impression; between the die and the coin; between a figure or device sunk and hollowed into any substance, and the same figure or device raised and in relief. And yet the Ancients, like their successors, seem to have used their terms of Art at random. The same word γλύφω, (in the Septuagint translation of חרת,) which literally means *I plough up*, is used to express the action of the graver, whether employed for cutting seals and signets, (*Exod.* xxviii. 9—11.) or for carving images and works in relief. (*Judges* ii. 2. 2 *Kings* xxi. 7. *Habb.* ii. 18.) In *Ezek.* iii. 9. of the Septuagint version, the verb ὀρύσσω, *I dig*, is used instead of γλύφω, *I plough*, and the substantive βόθρος, *a ditch*, instead of γλύμμα, *a furrow*, to express the operations of the graver. See our *Miscellaneous Division* for the Etymology of Grave.

Indistinctness of terms in this Art.

The Ancients also must have known that an impression upon any substance is the reversed image of the seal, die, or other instrument from which the impression has been taken, and not only reversed with respect to the direction of the lines of the impressing surface, but reversed also with respect to the workmanship (raised or sunk) of the surface itself. Thus of a diagonal drawn on the impressing surface from left to right they could not fail to discover the impression to be from right to left. Thus also they would ascertain, (without the exercise of extraordinary perspicacity,) that the impression of a relievo or cameo would be *en creux*—as in the operation of sinking or punching a die; and *vice versâ* they would see an opposite result in stamping the coin. They would moreover be equally in the habit of taking both kinds of impression, and would be familiar with the different substances most suitable for receiving impressions. Not only metals for this purpose, as in coins, medals, and counters; but terra sigillaris, cement, paste, and wax, would be constantly in requisition. (See Beckmann, *Hist. of Inventions*, on the Article *Sealing-wax*, 8vo vol. i. p. 208.) The Roman potter *stereotyped* his vases. The Greek or Roman slave-owner branded his slaves; the Greek or Roman conqueror his captives. The soldier, too, whether of Greece or Rome, received a stamp to mark him for a military conscript.

On sait, says M. Jansen, *que les Romains avoient coutume de marquer leurs vases. On trouve une infinité de ces vases de terre chargés d'inscriptions, sur lesquels on peut voir les recueils d'antiquités de M. le Comte de Caylus.* Vasa signare *veut naturellement dire* cacheter des vases, des bouteilles, *et c'est ce qui se pratiquoit. On mettoit le nom du consul sur le bouchon de la bouteille, pour faire voir de quelle année étoit le vin qu'on y conservoit, &c. De l'Invention de l'Imprimerie*, Paris, 1809, 8vo. p. 190. In the Hamiltonian Collection above alluded to, at the British Museum, a variety of stamps or brands found in the ruins of Herculaneum and Pompeii is preserved. See the IId Volume of Strutt's *Dictionary of Engravers*, to which, among other plates, is prefixed one (plate v.) containing six representations of this ancient kind of letter-press, the same size as the originals, which latter have the appearance of being first cast, in a kind of mixed metal resembling brass, and afterwards repaired or sharpened with the chisel. The letters in five of the examples given are raised from their ground like our metal types, and consequently would print black: in the sixth example they are *en creux*, (Art. 6.) and consequently would print the letters white, if an impression of the stamp were given with ink upon paper. Upon one, which is in the form of a fish, the Greek word ΠΑΝΘΑΙ in reverse is distinctly legible. Another takes the form of a shield; a third that of a sandal, &c. Some have inscriptions at full length: others only monograms. In one instance, three lines of *stereotype* occur following each other. So that the discovery of Printing was actually made, though not practised, as it should seem, upon paper, nor improved upon by movable types, and charged with ink. "Mankind," says Mr. Ottley, referring to an observation of the Abbé Lanzi, "have walked for many succeeding centuries upon the borders of the two great inventions of Typography and Chalcography without having the luck to discover either of them; and the stamps of the Ancients and the seals of the low Ages appear neither to have had any influence upon the origin of those Arts, nor to merit any place in their History." *Hist. of Engraving*, 4to. 1816, p. 59. Other learned persons look upon the *formæ literarum* of Cicero, (*de Naturâ Deorum*, lib. ii. 37.) by which he certainly meant separate letters made of metal, as a sufficient hint to the first type-founders. Others more fancifully trace the same idea to the Sybil's leaves, which

Specimens of ancient stereotype.

Impression, its antiquity

Manent immota locis neque ab ordine cedunt,

until the wind separates and scatters them. Virgil, *Æneid*, lib. iii. l. 447.

The reader, possibly, will recollect the words of our Form used in Baptism. The baptized Christian, on being received into the society or communion of the Church, is signed with the sign of the cross in token of having entered the service, and of becoming an enlisted soldier of Christ. See Wheatley on the Common Prayer, ch. vii. 7. p. 334. Vegetius, lib. ii. cap. 5. *De re militari*, says of the *tirones* or young Roman conscripts, *victuris in cute punctis milites scripti et matriculis inserti jurare solent*: thus signifying, according to the received sense of the passage, that previously to their *sacramentum*, or oath of allegiance, they received some outward indelible mark, and were enrolled or matriculated. Aetius, in lib. viii. c. 12. describing the στίγματα, says, στίγματα καλοῦσι τὰ ἐπὶ τοῦ προσώπου ἢ ἀλλοῦ τινὸς, μερους τοῦ σώματος ἐπιγραφόμενα, οἷα ἐστι τῶν στρατευομένων ἐν ταῖς χερσίν. Lipsius conjectures that this mark upon the hand of the soldier might have been the Emperor's name, but professes his ignorance of the nature of the stamp. The branding of slaves is distinctly and fully mentioned in Juvenal, *Sat.* xiv. 21—25, and not to multiply authorities, Cicero, *de Officiis*, lib. ii., mentions, *Barbarum* compunctum *notis Thuricus*; to whom a little after he applies the Greek term *stigmatum* (στιγματιάν) for a branded person. Captives, also, were marked in this manner: as was the fate of some Athenians (*v.* Plutarch in *Nicea*) taken captive in Sicily, and branded on their foreheads with the sign of a horse by their conquerors. στίγοντες ἵππον τῇ τὸ μέτωπον. *Vid.* Stephani *Lex. in voc.* στίγμα. These *stigmata* seem to have been variously made, perhaps often by puncture or tattooing, like those with which our common sailors mark their breasts and arms. The practice of stigmatizing seems to have prevailed through many Ages down to the present, as well for honourable distinction as for a sign of punishment, degradation, or servitude. Very nearly allied to this practice was the custom of painting the skin among our forefathers of Britain; under this form it prevailed, according to Mr. Macpherson, almost down to the Norman Conquest, and among the Saxon Nobility. (See *Annals of Commerce*, vol. i. p. 298, where the worthy North British Chronicler complains, in a note, of the erroneous application in England of the Roman term *Picts* to our Northern ancestors *only*.) For an amusing description of the mode of exercising this *branch of Art* at present in New Zealand, see Mr. Augustus Earle's *Account of Nine Months' Residence* in that Country, 8vo. Lond. 1832, p. 136—139.

Ancient practice of branding or *stigmatizing*.

It has called forth the surprise of all who have explored antiquity on this subject, that the Ancients, so near as they were to the discovery of taking impressions with ink upon paper or parchment, were never stimulated to contrive this ready method of multiplying copies, and thus of preserving their inestimable literature. The story of the ingenious Spartan King Agesilaus, tempts every modern reader of Plutarch to believe that the elements, at least, of the Art now under our consideration were not unknown to the initiated and civilized of Asia and Greece. That monarch, during a campaign in Egypt, whither he had repaired to the succour of the Egyptian King, found himself opposed to a force so disheartening and so disproportioned (two hundred thousand men) to the army under his command, that for the purpose of reanimating his brave and superstitious troops he had recourse to the following expedient. A sacrifice had been ordered, at which, while the Priest was preparing the victim, Agesilaus contrived to withdraw a moment, and to write within the palm of his left hand the characters ΗΚΗΝ, being the reverse of ΝΙΚΗ, the Greek word for victory. Returning to the altar at the instant of opening the body of the immolated animal, the King immediately took up the liver of the victim, and placing it in his left hand, seemed for a while lost in abstraction. All at once awaking from his pretended trance, and looking upon the sacred object, he affects surprise, and produces with seeming ecstasy the word ΝΙΚΗ imprinted on it, as a propitious answer from the Gods. The astonished and delighted bystanders hail the omen, which is spread instantly through the rest of his army, and actually animates them to the victorious achievement of his next battle.

Ancient ink impression taken by Agesilaus.

If this anecdote related of the Lacedæmonian hero of his day (his day was about 400 years before the Christian era) be true, we are disposed to think that, great as was the genius of King Agesilaus, and simple and unlettered as were his Spartan people, he might have learnt sufficient hints for this contrivance in his many visits to Asia Minor, Persia, and Egypt. But if, on the other hand, this story be only an amusing fiction; and if the relater of it in less than 500 years afterwards (Plutarch was born about A. D. 50) has quoted, which however there is no reason to suspect, a traditionary fable, we cannot believe that Plutarch himself, or any except the

Notes on Engraving.

most stupid of his readers, should never have heard or thought of some experiment for taking impressions with ink, which would imitate, or at least might verify, the ingenious trick imputed to Agesilaus.

From the original we extract the following portion: *Ἱστορεῖται ὁ Ἀγησίλαος εἰς Αἴγυπτον μεταπεμφθεὶς ὑπὸ τοῦ βασιλέως Αἰγυπτίων ἐπὶ μισθῷ.—Ἐπεὶ δὲ τοὺς παρ' αὐτῷ παραστήσεσθαι μέλλοντας ἑώρα διδύσκας τὸν ἐπιόντα κινδύνων διὰ τὸ τῶν πολεμίων πλῆθος (εἴκοσι γὰρ ἦσαν μυριάδες) καὶ τὴν τῶν περὶ αὐτὸν ὀλιγότητα, πρὸ τῆς παρατάξεως ἔγνω προθυμήσεσθαι ἀσυνιδήτως τοῖς ἄλλοις· καὶ ἐπὶ τὴν ἀριστερὰν ὑπιστρωμένην τῇ χειρὶ ΝΙΚΗΝ προσίγραψε· λαβὼν δὲ παρὰ τοῦ μάντεως τὸ ἧπαρ, ἐπέθηκε μὲν ἐπὶ τὴν ὑπογεγραμμένην χεῖρα· κρατῶν δὲ ἐφ' ἱκανὸν χρόνον ὑπέφαινε, δισταλμὸν καὶ προσποίησιν ἔχειν ἀποδοῦντος. μίσχει τῷ ἥπατι συναναληφθέντες, ἐτυπώθησαν οἱ τῶν γραμμάτων χαρακτῆρες· καὶ τότε τοῖς συναγωνίζεσθαι μέλλουσιν ἐδείκνυε, φάμενος τοὺς θεοὺς διὰ τῶν γεγραμμένων ἐκφαίνειν ΝΙΚΗΝ. ἀσφαλὲς οὖν τεκμήριον δόξαντες ἔχειν τοῦ κρατῆσαι ἐθάρρησαν τοῖς τὴν μάχην.* Plutarchi *Laconica Apothegmata. Agesilai, ad fin.*

Note (D.)

"Although the Engraver," says M. Bartsch, "has not the Painter's power of characterising different bodies by the appropriate colours of each, he possesses abundant means of representing their surfaces so intelligibly, that hard bodies shall be distinguished from soft, smooth from rough, shining from dull, and that the copper-plate may often rival in truth, fidelity, and beauty the coloured painting. For this purpose attention must be given to the different modes of handling as well with regard to the choice of strokes (fine or broad, deep or shallow) to be engraven, as with regard to the judicious direction and distribution of them. If this handling be entirely of the same sort throughout the plate, such a work will evidently possess less distinctness, and strike the eye less forcibly than a work in which each substance of the composition is appropriately executed, leaving us in no doubt of its individual character. An Engraving is always defective when, through the unintelligible handling of the graver, certain bodies represented are only to be guessed at by their outline, or by merely the light and shadow thrown upon them. The various substances and objects engraved, such as carnations, cloths, silks, metal, stone, &c., ought, with very few exceptions, to be distinguishable from each other by the handling alone." It is, therefore, by no means a matter of indifference, whether the lights and shadows are represented by lines drawn at random, but the strokes or dots used to mark the surfaces of different bodies must alternately be straight and curved, smooth and rugged, free and stiff, charged sometimes with more, and sometimes with less colour (literally rich and meagre, *genährt und mager*,) sometimes delicate, sometimes strong, sometimes in broad and sometimes in slender lines, but always judiciously adapted to the form of each body represented, and to the natural direction of muscles, folds, and every kind of surface raised or hollowed. *Anleitung zur Kupferstichkunde*, vol. i. p. 83. sec. 252, 253. ed. 1821.

Importance of good handling.

Handling varies with the kind of surface represented.

Sharp, clean strokes serve to represent polished surfaces; rough, wavy, crooked, and abrupt strokes and dots are adapted for dull and uneven surfaces. These strokes may be so placed as not to cross each other, in which case they are usually termed a single course of lines. In other cases they intersect and form various angles according to the peculiarities of the surface represented. One course of such shadings conduces to smoothness. Two or more courses represent, by their crossings, roughness or abruptness. One course of lines, cleanly and evenly cut, produces the highest degree of smoothness, polish, and glitter. A triple course of wavy or abrupt strokes produces, on the other hand, the highest degree of roughness. Between these two extremes lie innumerable varieties of handling which the genius of the artist must select and arrange. A double course of lines forming squares or trellis-work, that is, crossing each other perpendicularly, present a harsher and less agreeable effect to the eye than such an arrangement of courses as will form whole or half lozenges. This latter treatment is preferred for representing soft bodies, and is more or less departed from in proportion to the comparative roughness of the part delineated; it is, therefore, a treatment seldom introduced for drapery, but is successfully employed for the surface of the human skin, to which, equally by painters and Engravers, the same artistic synonymes are applied, *viz.* the flesh, the naked, or the carnations. On the subject of hatchings M. Bartsch draws a comparison between the works of Gerard Edelinck and Scheltius von Bolswert to the advantage of the latter, who, he conceives, should rather rank before than after Edelinck as far as regards manual dexterity in handling the graver, and who has executed some plates with such lightness and freedom as leave nothing to be desired. "But this freedom," adds the author, "has its origin in a judicious direction, union, and ultimation of the lines; important particulars in which Edelinck was remarkably deficient." The most expert Engravers have committed errors as to the location of their hatchings, by carrying them in a trellis-form over the whole plate. And, perhaps, the greatest evil resulting to the Art has been the unjust blame attached by obstinate and prejudiced people to the burin itself, which has been accused of producing, even in the most experienced hands, an effect of stiffness. To the surprising works of Edelinck was the palm of excellence fairly adjudged, for entire correctness of outline, perfect observation of light and shade, and clean execution; and yet some stiffness was to be discovered, a fault, it was conceived, not attributable to want of judgment in the artist, but inseparable from the use of the graver. This apparent stiffness, M. Bartsch contends, has its rise solely in a careless and injudicious arrangement of the strokes; in an over-anxiety to produce a metallic lustre through the exactness of their position; in the monotony also of their effect, and too frequent repetition of the same class of lines. *Ibid.* p. 97. sect. 284. and p. 94. sect. 278.

Handling.

Note (E.)

The same handling serves to engrave watered damask, and other shining rich silks, especially where dark flowers are thrown up over a light ground; only here the lines must run more closely together, and the intermediate strokes be drawn only in the shadows instead of being carried through to the light. Examples of beautifully executed velvet are to be found in portraits engraved by Wille, as well as remarkable specimens of flowered damask. M. Bartsch quotes also Wille's Engraving of "Cleopatra" after Gaspar Netcher, as a splendid imitation of white satin, so also is his "*Instruction paternelle*" after G. Terburg.

Handling for draperies, velvet silks &c.

Various other draperies used for dress are likewise worked in so many different patterns of Engraving suited to each. But this diversity does not so much consist in selecting the strokes as in placing them more or less apart; or as in expressing accurately and suitably by the direction of them the shape of the lights and shadows which they serve to delineate. Draperies light-coloured, or perfectly white, should, indeed, be represented by strokes of delicate fineness, while others darker or quite black require stronger lines. But a distinction is also to be made between thick stuffs, such as broad-cloth and other woollen draperies, and finer materials, such as linen, taffeta, and other silken fabrics of thin texture; by following with the burin the large round folds of the former, and the narrow sharp plaits of the latter, rather than by any difference in the application of the instrument.

Dark stuffs, how to be distinguished from light ones; thin draperies from thick, &c.

It hence appears that the Engraver who works according to rule, is not always obliged to vary his handling (Art. 15.) with every change of drapery, but that in some cases the form of the lights and shadows in his original will suffice, with judicious management, to give his work an air of truth and nature. "But it is evident," adds M. Bartsch, "that no expertness in the artist can enable him to represent with the burin such draperies as have been badly painted, and are imperfect either in respect to shading or outline. Defects in many Engravings are unjustly charged upon the Engraver, whose only fault, perhaps, is a too faithful copy of his original."

If a dress of white stuff and one of white linen be worked with the same class of strokes, yet a difference between the two textures will be readily discoverable by the characteristic disposition of the folds. The folds of woollen cloth are few and large: those of linen, on the contrary, are numerous, and hang almost perpendicularly. (See PAINTING, last note to Art. 264.) Fine linen, in Engravings, bears a near resemblance to taffeta, for both of them hang in small folds. But a nearer examination will show the folds of taffeta to be sharp, abrupt, and flowing; those of linen rounder, and hanging more perpendicularly. The same arrangement, too, of lines is adapted to satin as to taffeta and linen; yet the former of these materials (satin being thicker and heavier than the others) is readily distinguishable by hanging in fuller, larger folds. Satin, too, is easily discernible by its gloss, which can be imitated only by a strong contrast of light with darks. Taffeta exhibits very little of this appearance, and linen still less. For specimens of judicious handling, in representations of fine white linen, we are referred by M. Bartsch to a boy holding a torch in Jacob Schmutzer's Engraving of "Theodosius," after Rubens: in Wille's "Devideuse" and "Liseuse," both after Gerard Douw. Wille, he observes, has been less happy in his representation of linen in his "*La Tricoteuse Hollandoise*," after F. Mieris. The strokes for the linen should have been more delicate, instead of the handling being similar to that of the other draperies. See *Anleitung*, &c. vol. i. p. 88. sec. 265—267.

Variety likewise in the folds.

Specimens of good handling

For thick and rough woollen stuffs, waving lines may be used with advantage: they serve for a groundwork, and form the first and narrowest series of strokes; and are afterwards crossed by two series of other strokes cleanly cut and wider apart. The smaller the waves of the foundation lines or groundwork, the rougher and

Thick and rough drapery how expressed.

Notes on Engraving.

more woolly will the stuff appear. The coat of Wille's "*Cuisinier Hollandois*" after Metzu, exemplifies in perfection this kind of handling. For carpets and other woven materials of still greater roughness, small detached strokes resembling segments of circles are substituted for the waving lines. Their effect may be seen in Wille's admirable carpet of "*L'Observateur distrait*," after Mieris.

Handling.

Note (F.)

Handling of uneven ground.

In order to increase this effect of uneven and rough ground, small dots are introduced with the graver into the interstices of the hatchings. They must be placed quite freely and irregularly, and sometimes are even attached to the lines. As an example of this effect, M. Bartsch refers to a small space of excellent foreground in the Engraving before alluded to, (the "Theodosius" of Jacob Schmutzer.) and complains of Woollett and some of his followers for representing earth by a peculiar and quite different method which he allows to be pleasing, but denies to be natural. "The whole handling," says he, "is too broad. The strokes employed have too much of a serpentine character, and the whole effect is overlaboured and forced. See, for example, Woollett's celebrated Engraving, the 'Death of General Wolfe,' as well as most of his other works." *Ibid.*

Specimens from Schmutzer and Woollett.

Trees and plants.

The stems and leaves of trees and plants require also free touches. In trees, the bark of the trunk has great similarity with the unevenness of broken ground, consequently it requires nearly the same handling. But as the bark is hard, and, in many trees, smooth, the strokes must be finer, and proportionably closer than for ground.

Stony substances.

When stones are in a natural, unhewn state, and necessarily have a rough surface, they are engraved in the same manner as ground. For sharp and craggy objects the strokes ought to be frequently discontinued and broken. On the contrary, smooth stones must be expressed by straight lines cleanly and evenly cut in proportion to the degree of smoothness. In Architecture, the curved lines which shade round objects, such as pillars, &c., must be drawn carefully in good perspective. Each must tend to the centre of the vanishing line of its plane: namely, to the centre of the picture whenever the pillar or other cylindrical object has its axis parallel to the perspective plane. (PAINTING, Art. 118, 119, 120.) Upon entire standing columns the shading should, as much as possible, be effected by perpendicular strokes. If hatching be attempted, it should be at right angles to the first series of lines, and also much wider and thinner. Architectural work should never be black, except in representing old and ruinous buildings. New and handsome edifices built of stone or white marble, reflect light and colour on all sides, and cannot, like other substances, exhibit dark shades.

Buildings.

Distances. Water

Distant objects, as they approach the horizon, must be handled very tenderly. Calm and still waters are represented by strokes parallel to the horizon interlined with finer strokes, and having some parts untouched, where gleams of light appear, in reflections from the watery surface. Objects reflected from the water, which stand at a small distance from it, or on its banks, are expressed by retouching the horizontal strokes more or less forcibly, according to the nature and position of the reflected object. Sometimes these reflections may require lines even perpendicular to the horizon. To represent agitated waters, such as waves of the sea, the first course of strokes should follow the figure of each wave, and may be interlined: the second course, or cross strokes, ought to be very lozenge, *i. e.* ought to cross the other at a very acute angle.

Note (G.)

It is not enough that shadows and reflected lights be merely expressed by an alternation of broad and fine strokes; or by hatchings that contain one or more courses of lines. The courses themselves must also be so drawn as to show at once the requisite degree of roundness, protrusion, or prominency in the body they are designed to shade. In all hatchings, the first layer or foundation must be of broader lines than the rest, firmly drawn, and more closely ranged: the second rather thinner, and further apart: the third still more delicate. The first, being employed to describe the course of the muscles and the forms of bodies, should be marked the most strongly and decidedly. The others which cross it are added only to give more *colour* to the figures or bodies in question: the first only delineate; the others paint: the first serve for determining the form; the others are serviceable in imparting the due effect of chiaroscuro. To give the effect of distance, the detail of distant objects must have less distinctness as they recede from the eye: their minute parts should be omitted: their larger divisions shaded indistinctly and *in masses*. Or again, when the principal course of lines, in marking the direction of the muscles, and of folds in drapery, are drawn more faintly as they approach lights and reflexes; but deepened and made to swell out in positive shadows: the result will be both *warmth* and *richness* of colour. This gradual enlargement of lines in places that verge gently and gradually into shadow spares the necessity for a second or sometimes a third series, which must otherwise have been wanted for producing the required effect of colour, but would not have produced it so agreeably.

First layer of all hatchings to be broad.

Evelyn in his *Sculptura*, p. 108. mentions an ingenious expedient, for which he refers to the Treatise of Du Bosse to assist the Engraver in determining the direction of his hatchings according to the form of any engraved object. He supposes a square frame, such as we have represented in plate i. fig. 7, to have several threads or wires tightly stretched across it, parallel to one side, and a single thread so placed as to cross the others perpendicularly about the middle, and to show the direction of square hatchings. A model of the object to be engraved is then placed in the sun, and the frame is held between the sun and the model in such a position that the shadows of the parallel threads may fall upon it. The shadows take a direction perfectly conformable to the surface of the figure, and enable the artist to adapt his lines with similar fidelity to the representation of a similar surface.

Contrivance for determining the direction of the first hatchings.

To convince any one (Bartsch, *Anleitung, &c.* vol. i. sec. 281. p. 95) of the disagreeable effect occasioned by a departure from this rule, let some Engraving, the work of the Italian artist Giovanni Marco Pitteri, be examined. This Engraver, in many particulars a respectable one, finished most of his plates by means of one course of lines alone, which run parallel from the top to the bottom of the point over almost all the shades and lights; and are strengthened in the shadows as occasion requires. His knowledge of chiaroscuro enabled him to mark some apparent distinction between the parts of his picture represented retiring and other parts represented in relief. But on examination, their markings will be found in most cases exceedingly feeble and inefficient, merely from the lines which contain them having a contrary direction to the form of the engraved object. Another remarkable offender against this rule, who has almost totally disregarded carrying the strokes of his burin in a direction conformable to his outline, is an eminent French artist, Claude Mellan. Most of his Engravings are executed by a single course of parallel lines passing over the whole plate, and expressing the shadows by being made in some parts stronger or broader, and consequently nearer to each other. A head of Christ by this artist is executed with even a single series of spiral lines commencing at the tip of the nose. "We may easily imagine," says M. Bartsch, "without seeing this print, the disagreeable, constrained effect of this endless continuity of curves, quite independent of the several given forms to be represented by them: not to mention the flatness of the shadows, the unpictorial monotony, and the universal confusion inseparable from such a burlesque upon the Art of Engraving." The severe justice of this criticism we are not prepared to dispute: but we are at the same time wickedly inclined to suspect, that had these offenders been of the German or even of the Flemish School, M. Bartsch would have been more merciful to their ingenious eccentricities

Specimens of bad handling.

If the first and second course of lines cross each other in such a manner as to form squares, the third course or series should make with one of them a lozenge. Or, if the first two form a lozenge the third should make a square. The latter method of handling has a superior effect, and is consequently preferred to the former. Lines for drapery must vary according to the shape of the folds. The first course must here be used (as for flesh) to delineate the form and direction of the folds. If this one course be insufficient to characterise them properly, a second or even third series must be employed; each always less marked than the course which preceded it. Lines in a naked or other figure which terminate at right angles with its outline have a very bad effect; all such lines should take a sweeping direction, conformable to the outline, and should lose themselves in it softly and imperceptibly. Respecting distant objects, M. Bartsch recommends that in order to give them less distinctness, all lines in the distance should be delicate, and its outlines as well as shading less defined. Shadings off must be very gradual: objects, in proportion as they tend to the horizon, must have finer and thinner strokes: the smaller portions of distance less and less marked; the larger portions more and more indistinctly, and in masses. Harshness is to be avoided generally throughout any picture by due attention to keeping and harmony. (See PAINTING, p. 576.) Much depends on the strength of the lights. Where strong lights appear, the shadows are more marked and bolder: but where the light is feeble they have greater softness. The chief difficulty, therefore, is to avoid harshness in strong lights, because here all shadows terminate abruptly.

Hatchings either lozenge or square, or uniting both

Other rules for the direction of engraved lines

Note (H.)

See the remarkable passage in that most ancient relic of patriarchal literature, the Book of *Job*, ch. xix. ver. 23, 24. quoted by

Notes on Engraving.

Evelyn,(*Sculptura*, p. 20.) and after him by Strutt, (*Essay on Origin of Engraving*, p. 8.) of which the latter gives the following literal version. *Who shall give* (or ordain) *now, that my words shall be drawn* (or written:) *who shall give that in a book*, (or memorial,) *they shall be delineated: that with a pen of iron and lead they shall be hewn out in the rock for ever?* Better explained by Bishop Patrick's paraphrase: Oh that my protestations and appeals might remain upon record, registered in the public acts, and that they might be graven upon a plate of lead with an iron pen, nay cut into a rock or marble pillar, to continue to all posterity! Of this passage in Job, Evelyn observes, that it "comprehends all sorts of ancient writing or Engraving," the use of the stylus and of books, the use of plates and of stone. The Septuagint version of it is as follows: Τίς γαρ ἂν δοίη γραφῆναι τὰ ῥήματά μου, τεθῆναι δὲ αὐτὰ ἐν βιβλίῳ εἰς τὸν αἰῶνα; ἐν γραφείῳ σιδηρῷ, καὶ μολίβδῳ, ἢ ἐν πέτραις ἐγγλυφῆναι. To this we add another quotation from a much later scriptural authority, *Isaiah*, ch. xxx. ver. 8. Νῦν οὖν καθίσας γράψον ἐπὶ πυξίου ταυτα καὶ εἰς βιβλίον ὅπε ἔσται εἰς ἡμέρας καιρὸν ταυτα καὶ ὡς εἰς τὸν αἰῶνα. *Now go write it before them in a table*, &c. Here the word πυξίον, which we translate table, means *tabella scriptoria*, or more literally, a tablet of boxwood, being made out of the πυξίς, or box-tree. Πυξὶς seems as fair a derivation for our English or Saxon word Book: as papyrus for *paper*; or as βίβλος (another name for papyrus, the Egyptian plant or reed that furnished paper) for *bible*. *Liber*, in Latin, took its name likewise from the material used for writing on; *viz.* the inner bark (*liber*) of trees. Adams, *Rom. Ant.* p. 506. We have already observed (see *Biographical and Historical Division* for CONFUCIUS, p. 491.) upon the custom, probably familiar to the Chinese, of using the bark of trees before the invention of paper: and have alluded to manuscripts of the kind preserved in several Libraries of Europe. M. Klaproth, in his *Tableaux Historiques*, 4to. 1821, dedicated to M. Humboldt, thus chronicles the acts of a Chinese conqueror and Emperor, Thsin-chi-hoüang-ti, whom he styles *fondateur de la dynastie Thsin qui a donné à la Chine le nom qu'elle porte dans l'occident. Il eut sans cesse à lutter contre les grands qui auraient voulu de nouveau morceler l'empire, et qui n'oubliaient rien pour rétablir le système féodal des Tcheou en s'appuyant sur les anciens livres et sur l'histoire. Excédé des représentations importunes et répétées, qui contenaient des passages et des principes extraits de ces livres, il commanda de brûler tous les anciens ouvrages historiques, et principalement ceux de Confucius, qui avoit vécu environ 300 ans avant lui. Ces ordres furent exécutés avec la plus grande rigueur. C'est cette mesure violente que les lettrés Chinois n'ont jamais pardonnés à l'illustre fondateur de la nouvelle Monarchie. Cette exécution est la cause il est vrai de l'état incomplet dans lequel les notions historiques sur l'antiquité Chinoise nous sont parvenues. Néanmoins elles n'ont pas été tout à fait perdues; car dans un pays où l'écriture est si répandue, il était presque impossible que toutes les copies d'ouvrages universellement respectés pussent être anéanties, surtout à un époque où la matière sur laquelle on écrivait était très durable. Les caractères étaient en effet gravés avec un stylet sur des tablettes de bambou, ou bien ils y étaient tracés avec du vernis, d'une couleur foncée. Cependant si l'empereur des Thsin a fait essuyer une perte irréparable aux sciences par la destruction des livres anciens; son grand général Moungthiau les en a amplement dédommagées par la découverte du papier et du pinceau.* Klaproth, *Tableaux Historiques*, p. 35.

Reference in Job. xix. 23, 24. to ancient Engraving.

Also in Isa. xxx. 8.

Chinese tablets.

A yet more ancient downfal to literature by removing the means of spreading knowledge through printed signs, must have taken place at the destruction of Babylon. Mr. Hansard, quoting from Mr. Maurice's *Ruins of Babylon*, describes the substance used by the Chaldeans to preserve public records of whatever they desired to commemorate. A composition was prepared of clay mixed with reeds and formed into the shape of bricks. While yet in their moist state, the device or inscription intended to be published, was stamped upon them from some surface (probably of wood) with raised characters engraved on it for the purpose, and the stamped material was then subject to induration either by the Sun or by fire. The corroborative evidence of Mr. Hansard, a distinguished printer, (*Typographia*, p. 6.) is extremely valuable as to the mode of stamping that must have been used. Of this substance ἐξ ὀπτῆς πλίνθου of *burnt brick*, formed into square masses and impressed with mystic characters, the walls and palaces of Babylon were for the most part constructed. Three specimens are preserved in Trinity College, Cambridge, (one of them a cylindrical fragment covered with characters imprinted in longitudinal lines,) two or three in the British Museum, and several in the Library at the India House. The opinion of Pliny in his chapter of inventions, (*Nat. Hist.* lib. vii. cap. 56.) *Litteras* SEMPER *Assyrias fuisse*, bears a very striking reference to the Oriental origin of language, and of the arts of human intercourse by signs written, engraved, or printed.

Babylonish records impressed on bricks.

Note (I.)

Original Block printing.

J'ai vu, says Papillon, whose authority as an honest witness is unimpeachable, *des livres Chinois chez M. Fourmont l'aîne, dont la gravure est admirable. Les liaisons des caractères sont si déliées et si nettes que nous aurions peine à les graver aussi proprement.* A great acknowledgment from the best xylographic artist of his day. *D'ailleurs la beauté de l'impression et la blancheur du papier sont si parfaites, que je n'ai encore vu ni lettres gravées ni aucune impression d'Europe qui mérite de leur être comparée. Tous ces livres sont imprimés foncièrement avec l'encre de la Chine, (car dans ce pays-là on n'use point l'encre à l'huile,) les feuillets ne sont imprimés que d'un côté, en sorte qu'ils sont plies comme nos petits agenda de poche, et que chacun des ails feuillets sont doubles; cependant le papier est si mince qu'on a peine à s'en appercevoir.* V. *Traité de la Gravure en Bois*, tom. i ch. vi. p. 59. He assigns also the thinness of the Chinese paper as the reason why it is never wetted. It is, indeed, too delicate and fragile a material for an ordinary printing-press; but from the circumstance of not being sized with alum, it has only to be brought into contact with the ink to take an immediate impression. The block (a not very thick tablet of pear, or apple-tree, or other hard wood) must first be firmly fixed in a horizontal position. Two brushes, one of a stiffer kind, (which may be held in the hand and used at either end,) the other softer and of an oblong form, must be provided. The stiff brush is dipped in the ink, and the block sufficiently rubbed with it to give an impression; but not so wetted as to blot and slur the characters. The block becomes gradually saturated, and in a state to print three or four sheets successively without a fresh supply of ink. But notwithstanding this advantage in saving time, it seems incredible that one man, according to Du Halde, can, without fatigue, print three thousand sheets a day. The softer brush is applied to rub the paper on the block with sufficient pressure to receive the impression. Du Halde, *Description de l'Empire de la Chine*, tom. ii. p. 299. Mr. Hansard, in his *Typographia*, 8vo. London, 1825, gives a most ingenious fac-simile of Chinese printing; it is executed after an original block, from which probably a mould was taken for casting it in type-metal. The original, which is five-sixths of an inch in thickness, being engraved on both sides, Mr. Hansard prefers to call a wooden leaf. This author mentions having seen in the Library at the India House, "several specimens in various stages of the process: some having the paper with the characters traced, ready glued to the board: some engraved but never printed from: others showing signs, like the original he has had copied, of much wear; and one very large block of a picture in outline. But all these are only engraved on one side and have a dovetail at each end to slide into larger blocks, by which they are held firm for the workman's use. Several of their engraving and printing tools are also in the same Library, and confirm the account given of their workmanship." See CHINA, *Miscellaneous Division*, p. 589.

Papillon's opinion of Chinese Engraving.

Method of printing in China.

Specimens at the Library of the India House.

Note (K.)

The writings of Marco Polo, after his residence for eighteen years in China, resembled, in their reception among his contemporaries, the travels of Bruce, the celebrated explorer of Abyssinia. Marco Polo, says Mr. Ottley, preferred instructing his Countrymen in matters with which they were not hitherto acquainted, and relating wonders, which, until corroborated by other testimony, were not believed. His book for a long time was considered little better than a collection of fables of his own invention; later travellers, however, confirmed the truth of some of his accounts: but that which most of all established his veracity was the publication of *The Travels of the Two Arabs* in the IXth Century, who at that very remote period maintained and recorded their intercourse with the Chinese. A French translation of this Arabian author by Eusebius Renaudot, a learned Jesuit and Orientalist, appeared at Paris in 1718, 8vo. The writer of this narrative informs us, that all the *Chinese, both rich and poor, learned to read and write*; from which circumstance Mr. Ottley builds a very rational presumption that Printing was even then common in China. Manuscripts can never in any Country be a sufficiently cheap literature to be available for the poor, and least of all Chinese manuscripts. See Tiraboschi, *Storia della Letteratura Ital.* tom. iv. p. 103. and Ottley's *History of Engraving*, p. 50. 55. Marco Polo is not altogether silent upon Chinese Printing. He describes the process of stamping paper-money in the city of Cambalu, (Khân-balek,) since called Pekin: to which process we have alluded in our biography of Confucius, p. 504. It is manufactured, says he, from the inner rind of the mulberry-tree made into a pulp, and reduced with size into the form of paper. It is quite black, and is cut, when finished, into large and small square or oblong pieces: according to the intended value. Public officers, deputed for the

The "marvels" of Marco Polo corroborated by other writers.

Polo's account of paper-money in China.

Notes on Engraving.

purpose, write first their names, and affix each one his mark; after which a principal commissioner, appointed by the Cham, *imbratta di cinaprio (cinabro) la bolla concessa gli, e l'impronta sopra la moneta, si che la forma della bolla tinta di cinaprio, vi rimane impressa.* (Smears with cinnabar the seal consigned to him, and imprints it upon the money, so that the figure of the seal coloured in cinnabar remains impressed upon it.) *Navigationi et Viaggi. Raccolto di* Ramusio, tom. ii. fol. 29.

We have given, in the note immediately preceding this, a description of the Chinese process of Printing, compiled from Mendoza, the Jesuit Ambassador to China in 1584, by Du Halde. We now give from Breitkopf, (*Unsprung der Holzschneide kunst*, 2 theil, p. 160.) as quoted by Mr. Singer at p. 83 of his *History of Playing Cards*, a description of the method used in Germany by the early *Formschneider*, or Wood Engraver. "The artist," says M. Breitkopf, "planed a plank of pear-tree wood, and after neatly shaving and polishing it with a piece of sharp iron or glass either pasted an inverted copy of his design upon the wood, or if he were an adept in his Art rubbed off the pencilling of the original upon the plank. In the former case the drawing was entirely destroyed, since he must cut through it into the block; in the latter, the drawing was preserved, and it remained in his power to correct whatever was not distinctly expressed. He then with a small sharp instrument cut away the wood on each side of all the lines in the design before him, and leaving whatever space was marked with colour, chiselled the remaining wood away with other instruments. His labour thus completed, all the lines forming the object represented in the drawing would stand out in relievo. To make impressions of his work, he mixed lamp-black in water to the consistence of a paste; or used the common black ink, still sometimes employed by card-makers; poured some of the liquid upon a wooden trencher and filled a long-haired brush with it, which he passed over his wooden plank or block. In this manner he covered the prominent lines of his wood-cut with as much colour as was necessary for an impression. He next laid wet paper upon the coloured surface, passed over it a smooth broad piece of wood, or a thick horse-hair brush smoothed with oil, and continued this operation to and fro, until he perceived that all the lines of the wood plank were imprinted on the paper; which was then removed from the block, and his work finished." So numerous are the points of resemblance between this method and that practised by the Chinese that it seems obvious, almost to demonstration, that the Art of Engraving and Printing from wood was conveyed to Europe from China. See Palmer, *History of Printing*, p. 5.

German method of printing from wood similar to the Chinese method.

Note (L.)

The earliest mention of the term *kartenmacher* (card-maker) in Germany, is found in the records of the city of Augsburg, which in the XVth Century, and some Centuries earlier, was one of the great depots of the Venetian merchants, through which, by land carriage, they furnished the Southern parts of Germany with articles of commerce and manufacture. Buxheim, at no great distance from Augsburg, is renowned in the annals of xylographic printing, for the discovery there, by Baron Heineken, of the earliest Print bearing a date of which at present any certain knowledge exists. It is the wood-print of Saint Christopher, dated 1423. It is preserved in the splendid Library of Earl Spencer in the same state as when Heineken discovered it, pasted in the inside of one of the covers of a Latin MS. of the year 1417: within the other cover of the same MS. is pasted likewise another wood-cut, "The Annunciation of the Virgin," but without a date. Both of them bear less resemblance to the angular stiffness of the German School than to the Italian style of Art, and though in both of them the explanatory Latin inscriptions are in the German or black character, yet that Gothic character, as observed by the Abbé Lanzi, (*Storia Pittorica*, tom. i. p. 72.) prevailed in Italy for inscriptions on Pictures till towards the close of the XVth Century. Neither of these Prints appears to have received the impression by the stroke of a soft brush on the back of the paper, according to the ancient method described by Breitkopf. Both, as Mr Ottley observes, are *printed with a press* upon a paper rather thick than otherwise, with black oil-colour, or what is commonly termed printing ink. It seems to us to combine the labours of an artist from Italy with those of a German pressman.

Discovery by Heineken of a wood-print dated A. D. 1423.

Note (M.)

Mr. Savage, in his *Practical Hints on Decorative Printing*, observes truly of the roller used by Chinese artists, that it was one of the most ancient modes in Europe of taking impressions; and informs us that a hand-roller is sometimes used at this day by our Engravers on wood to obtain good proofs from their blocks. The simplicity of the method by a hand-roller would facilitate taking impressions in the private manner in which the Art, at first, was anonymously practised by European craftsmen. There would be no noise to excite curiosity, nor any cumbrous machinery to be concealed from the public gaze: of which Guttenburg, as we know, was extremely jealous. The probability is, that the hand-roller suggested the idea of the rolling press for taking impressions from metal plates.

Same kind of instrument, the roller, used in Europe as in China for printing from wood.

First Prints from Wood.

On the subject of ink, Mr. Savage considers that the oil-colour or printer's ink, used for impressions has frequently been injurious, and more especially to works printed in different shades or colours after the method called chiaroscuro. He looks upon the oil as not only producing changes in the colour used, but also stains in the paper, by separating itself from the colouring matter. He gives (at page 100 of his book above mentioned) a receipt for black printing-ink as follows:

An improved printing ink.

	Ounces.
Balsam capivi	9
Best lamp-black.....	3
Prussian blue	1½
Indian red.....	½
Turpentine soap dried	3

"ground on a marble or stone slab with a muller to an impalpable fineness." Instead of the lamp-black, Prussian blue, and Indian red, other colours may be tried, and impressions obtained of coloured works in chiaroscuro, which, Mr. Savage maintains, will not exhibit the defects of common printing-ink.

Ink appears an ancient Roman invention, a *paint*. (See INK, in the *Miscellaneous Division*.) Mr. Ottley observes, that a proper black ink for printing made its appearance in Germany simultaneously with the introduction of the Press; and the first Bible that issued from the Press of Guttenburg at Mentz, soon after 1450, is printed with ink, which in blackness and consistency has never been surpassed. *History of Engraving*, p 92. Mr. O. appears to infer that the Italian style of the Buxheim Prints of 1423. mentioned in a former note, which are printed with black printing and in a press, might claim for the Press also a Venetian origin.

German ink excellent, at the first appearance of this Art.

Note (N.)

The date of this dedication must, of course, be limited to the period during which Honorius IV. held the Papal chair: namely, between April 2, 1285, when he was elected, to April 3, 1287, when he died. The Baron Heineken joined the Parisian dilettanti of his time in endeavouring to laugh to scorn Papillon's sentimental story of the Cunio: but Heineken, though he bears testimony to the upright character of Papillon, and expresses his confidence that he did not invent the story, is himself severely observed upon by De Murr, as guilty of palpable misrepresentation. *Je ne sçai pas pourquoi M. de Heineken cite si faussement ce trait si curieux et remarquable,* (alluding to Papillon's narrative.) *Au lieu d'Honore il mit Urbain. Il dit que M. Papillon étoit alors 14 ans, mais il en avoit au moins 21, étant né l'an* 1698. Murr, *Bibliothèque de Peinture, &c.*, 12mo. Frankfort, 1770. Heineken likewise asserts that no Count Alberico Cunio existed in the time of Pope Honorius IV.: but the Abbé Zani (*Materiali, &c.* p. 233.) quotes Tonduzzi's *History of Faenza*, printed in 1675, which records, from A. D. 1149 to A. D. 1285 inclusive, many interesting particulars of the Cunio family, and of successive Counts, Guido, Bernardino, and Alberico. The character, too, we must here add, of Hoooorius IV. was that of a cultivator of Literature, and peculiarly favourable to the tasteful pursuits of his young relatives. He is thus described in vol. i. p. 306, of *L'Art de vérifier les Dates*, fol. Paris, 1783: *Honorius IV. aimoit les lettres, et projetta, pour les faire revivre, des établissements que la brièveté de son Pontifical, et les conjonctures où il se trouva, ne lui permirent point d'exécuter.*

The Abbé Zani's inquiry respecting the Cuolo

The following is the translation given by Mr. Ottley (*Hist. o Engraving*, p. 13.) of Papillon's French version of the dedicatory inscription at the beginning of the Work. "The heroic actions, represented in figures, of the great and magnanimous Macedonian King, the bold and valiant Alexander; dedicated, presented, and humbly offered to the most holy Father Pope Honorius IV., the glory and support of the Church, and to our illustrious and generous father and mother, by us Alessandro Alberico Cunio and Isabella Cunio, twin brother and sister: first reduced, imagined, and attempted to be executed in relief, with a small knife, on blocks of wood, made even and polished by this learned and dear sister; continued and finished by us together, at Ravenna, from the eight Pictures of our invention, painted six times larger than here represented; engraved, explained by verses, and thus marked upon the paper, to perpetuate the number of them, and to enable us to present them to our relations and friends in testimony of gratitude, friendship, and affection. All this was done and finished by us when only sixteen years of age." The original inscription is stated

Further particulars.

Notes on Engraving.

by Papillon to have been in Latin or ancient Gothic-Italian: an internal evidence of which fact is, as Mr. Ottley observes, the cramped style of Papillon's, or rather M. Greder's, French translation. It proves itself to have been "done into French" *boná fide*, and literally, from a Latin original. (V. Papillon, *Traité de la Gravure en Bois*, tom i. p. 84.) Mr. O. also remarks, that although the scholarship of Papillon might be insufficient for deciphering this ancient dedication without assistance, he must at least have been able to make out the proper names, Alexander, Pope Honorius IV. and those of the two Cunios. Then as to his competency on artistic points, it cannot be disputed. He mentions a memorandum, written probably by one of the Cunios, (for the copy in question was preserved in their family,) on the margin beneath one of the Prints to this effect: "*The ground of the wooden blocks must be hollowed deeper, that the paper may not touch it any more, so as to be smeared, in receiving the impression.*" He says the blocks appear to have been printed by means of the pressure or friction of the hand, with a light tint of indigo in distemper, and describes the impressions to be granulous, as if the paper had been applied to the engraved block without being first damped. This is, says Mr. O., exactly a circumstance usual with very early wood-prints. They were printed without any mixture of oil in the colour used for the purpose: and there is good reason to presume, from the shining appearance of the backs of old Wood Engravings of this kind taken off by friction, that the paper was commonly used dry. Wet paper would not have withstood the friction which appears to have been applied.

The fate of these amiable twins was untimely: the youth, trained to war, (a chief employment of Italian gentlemen in those days,) followed his father, the Count Cunio, in one of the expeditions which then so frequently embroiled the petty States of Italy. It was after signalizing himself so as to be knighted in the field, for his courage and conduct, and during the subsequent interval of his being ordered to Ravenna for the cure of his wounds, that he began to compose and engrave with his sister the Work in question. They continued afterwards to employ together the few seasons of respite from Civil warfare in this peaceful occupation: but in a fourth campaign with his father, the brave young cavalier fell covered with wounds, and the affectionate Isabella, broken-hearted by his loss, died not long after. It is to be regretted that Papillon lost sight of this curious Work upon the death of his Swiss acquaintance. The Library of the Vatican is said to have been searched, but hitherto in vain, for a supposed presentation copy to Pope Honorius IV.

Zani, in the passage of his Work above alluded to, observes of the notices which he was so fortunate as to collect from Tonducci's *History of Faenza*, that although no mention is expressly made respecting the two twins of the family of Cunio, nevertheless there is great probability that a Count Alberico Cunio (spoken of as a celebrated character in the same year when Honorius IV. was elected Pope) was the father of Alessandro Alberico and Isabella.

Note (O)

The first-mentioned of these compound or mixed modes of blockwork was one of the earliest, and was practised by the *kartenmacher*, and by the manufacturers of movable altar-pieces called *ancone* by the Italians. The word is conjectured to be a corruption from εἰκών, *icon*, an image. Jansen adopts the opinion of Breitkopf, that the *kartenmacher* were subsequent to the illuminists. Throughout ancient Christendom the use of these sacred dyptics was very general. The oldest Print extant with a date, called the Buxheim Print, of which we have already spoken, (see note (L.) above,) was coloured in this manner, as likewise its companion, "The Annunciation." Both, it is probable, were originally designed to fold up in a portable form facing each other, to be opened on occasions of devotion, and when the Mass was to be celebrated. Probably many more of these (not treasures of Art, but rather) biblical relics remain yet undiscovered in the Religious Houses of Germany. Excellent fac-similes of the two Buxheim Prints, and of another considered still older, representing St. Bridget, are given in Mr. Ottley's *History of Engraving*. The colouring, or tinting, however, is purposely omitted, in order to show with more distinctness the lines of the Engraving. The colouring of the original St. Bridget is not laid on by means of stencils, but by the hand. (*History of Engraving*, p. 88. note.) Both the original St. Christopher and the "Annunciation" are stencilled, and both with the same colours, and both appear to have been printed on the same paper. (p. 91.) Lanzi describes the uses to which these sacred Pictures, dyptics, or movable altar-pieces (*che in più paesi d'Italia si nominavano ancone*) were applied, and thus quotes from Buonarotti: *Uso antichissimo de Cristianesimo fu tenere sopra gli altari nel sacrificio della messa i dittici d'argento o di avorio, che, finita la sacra funzione si ripiegavano, come un libro, e si recavano altrove. Ritennesi la stessa figura anche introdotte le tavole più grandi, che similmente erano due ed amovibili; e questa usanza di cui poche reliquie ho vedute in Italia, si è conservata lungamente nella chiesa Greca. Finalmente a poco a poco si cominciò a dipingere in una sola tavola unita.* (V. *Storia Pittorica*, vol. i. p. 72. note.) The ancone are particularly specified in the Venetian decree of 1441. (See fourth note to Art. 25.)

Sacred dyptics.

Their uses.

Wood-cuts.

Note (P.)

The phrase printing in *chiaroscuro*, or in cameo, has been exclusively applied to this compound process of Engraving, although it must be evident that all engraved works, except mere outlines, imply the knowledge and practice of chiaroscuro. "It is supposed that at first only two blocks were used; one to give the outline and the shaded parts, and the other the coloured ground out of which the lights were cut, to imitate their being put in with white; and this effect was produced by impressions on white paper. In a very few years the process was carried further, so as to imitate drawings in chiaroscuro, and with such success as to induce some of the greatest artists to encourage it by their assistance in drawing the subjects on the blocks. These early productions were confined to three or four blocks printed with different gradations of shade of the same colour which produced the effect of what is termed chiaroscuro. Their general colours were dull ochry yellow or brown; sometimes they used a grey ink; sometimes a reddish colour; sometimes dull blue or purple; and they occasionally varied the colour of one block; so that we meet with the same subject printed in a variety of ways, and producing different effects. In many instances they did not engrave an outline, but produced their imitation of drawing by gradations of tints, the termination of the tint being the termination of the subject; while different depths produced the draperies and shaded parts." (Savage, *Practical Hints.*) The same distinction is made by Bartsch, (*Anleitung, &c.* th. I. sec. 118—120.) between 1. the process by means of two blocks for imitating drawings on coloured paper touched up with white; and 2. the imitation of drawings in bistre or such as contain, three, four, or even five tints laid on in flat masses. To this second style, requiring at least three and frequently four separate blocks, he gives the name *grau in grau*, (grey upon grey,) or *camayeux*, because intended to imitate Paintings known by that name. For a further account of these processes, see Papillon, *Traité de la Gravure en Bois*, tom. i. ch. ii. iii. and iv. To these methods Mr. Savage adds, in the Work just quoted, a further attempt in which he has succeeded but indifferently to imitate coloured drawings. He introduces various specimens from Paintings and Drawings by Callcott, Neale, Craig, Varley, and Brooke, some in a suite of seven blocks, one of thirteen, one of fourteen, and one (a sad failure!) of no less than twenty-nine blocks.

Progress of Engraving in chiaroscuro.

Note (Q.)

The card-makers, according to Adam Bartsch, were the original cutters in wood, (*formschneider*,) but probably only became a distinct Corporate Body in Germany after they had laid aside the manufacture of cards, and were solely employed in engraving Pictures. This epoch, however, is not ascertained. We only know that they assumed the name of *formschneider* about A. D. 1449. In proportion as printing-offices in the XVth Century became more numerous, and the demand for books increased, (which, in imitation of the MSS. of that period were crowded with Prints and pictorial illustrations,) the number of craftsmen in this profession multiplied: and, as happens with a multitude of professors in any Art or Science, divided their labours, each taking a peculiar department. Hence arose numerous distinct branches, more particularly in Nuremburg and Augsburg, between the years 1459 and 1486. But the *formschneiders* separated themselves into a higher class as soon as their connection with the profession of Painting raised their Art beyond a mere mechanical trade.

It has been a question whence the grotesque figures on modern court cards could have been derived. They bear no distant resemblance to some of the representations of the human figure among the Chinese, and it will be seen that their modern cards are charged with similar designs, but we have no certain clue to guide us in ascertaining whether ours were thence derived. (V. ENGRAVING, pl. i.) The figures in Mexican hieroglyphic Paintings also afford objects very resemblant to those on our court cards, but there is not any reason for supposing that with them they have any connection. Perhaps we ought to seek no further than the rude cuts of the XIVth and XVth Centuries, many of which are as remote from being correct imitations of humanity, as are the similar objects depicted on the figured cards of the present time. Singer's *Hist.*

Card-makers the earliest xylographers.

Notes on Engraving.

Wood-cuts

of Playing Cards, 4to. p. 215. Heineken proves the manufacture of playing cards in Germany to have existed as early as A. D 1376.

Bartsch gives a long list of the different divisions of labour resulting from the increased quantity of work, and the consequently increased number of workmen. He mentions the *kartenmacher*, (card-makers.) *kartenmahler*, (card-painters,) *briefmahler*, (letter-painters,) *briefdrucker*, (letter-printers.) *formschneider*, (block-cutters,) *modelschneider*, (model carvers,) *modisten*, (modellers,) *patronisten*, (stencil or pattern-makers,) *schachtelmahler*, (box-painters,) *illuministen*, (illuminists,) and *schönmahler*, (gilders.) He then proceeds to a brief history of each department. The old letter-painters and pattern-makers still continued their occupation, and have existed to the present day through various stages of improvement. The model carvers went over to the manufactories of printed cottons and linens; and the *illuministen* and *schönmaler* to the Engravers on copper, in whose service they are still partly engaged. But the block-cutters, or *formschneider*, separated themselves entirely into a distinct Body, continuing gradually to improve their Art, as it more and more became connected with Painting and Design. *Anleitung*, &c. th. i. sec. 594.

Note (R.)

To instruct those who could not afford MS. copies of the Scriptures or of religious books, which were sometimes expensively and magnificently illuminated, and which, even when cheapest, were too costly for the common people, a small folio, entitled *Historiæ veteris et Novi Testamenti seu Biblia Pauperum*, was published. Copies of it have long been among the literary rarities of our times. The *Bibliotheca Spenceriana* of Dr. Dibdin may be referred to as peculiarly rich in treasures of this kind. Mr. Ottley, whose *History of Engraving* contains much curious matter concerning the *Biblia Pauperum*, describes it as a small folio of forty leaves, printed on one side of the paper only, by means of friction, from the same number of blocks of wood, or, more probably, from twenty blocks, in which case each block would contain two engraved pages. The blank sides of the paper were then pasted together, so as out of every two to form one leaf, with the appearance of being printed on both sides: in which respect, observes Mr. O., as well as in its brown tint, apparently unmixed with oil, it resembles most of the early block books. (p. 112.) Each Print or page being from 9½ inches to 10¼ inches in height, by about 7½ inches in breadth, furnishes three subjects from Scripture history, disposed in compartments side by side, across the middle of the page. The space above the central subject is occupied by two half-length figures of prophets, patriarchs, or holy men. The space below is similarly occupied, and the remainder of the page at its four corners is taken up by rhythmical and other inscriptions in Latin, explanatory of the events and persons represented. These pictorial representations are coloured in a rude manner, unworthy, in many instances, of the Engraving. The Work passed through several editions, which Heineken is very careful to particularize, as did also the *Vision of St. John*, published in a similar manner about the same time. This *Biblia Pauperum*, or Poor Man's Bible, excited in those days no peculiar interest beyond its being thought a cheap compendium of religious knowledge. Modern estimation, however, entitles it to the name of *Biblia divitum*. Mr. Hansard (at p. 36 of his *Typographia*) thus states the prices that have been given in the XVIIIth and XIXth Centuries for the *Poor* Man's Bible of the XVth:

Biblia Pauperum.

		£.	s.	d.
1753 at the sale of	M. de Boze. 1000 livres,	43	15	0
1765	M. Gaignat, 830 livres,	36	6	0
1791	M. Paris	51	0	0
1813	M. Willett	257	0	0
1818 or 1819....	Duke of Marlborough ..	52	10	0

Note (S.)

That great step (says Mr. Hansard, quoting from Horne's *Introduction to Bibliography*) towards perfecting the Art of Printing, namely, the invention of fusil types appears pretty well ascertained to have been in the year 1456. Twenty-five of the leaves of the *Speculum Humanæ Salvationis* were printed before that invention; and the remaining thirty eight leaves, together with the Preface to complete the book, had the advantage of cast type. The second Latin edition differs from the former, in having the whole of the explanatory text printed with fusil type, exactly resembling those employed for part of the letter-press of the first edition. In the Flemish or Dutch editions, the text is printed entirely with movable type.

A. D. 1456. Invention of fusil types.

The chronological order in which the discoveries in Typography succeeded each other, has been put down thus:

Printing from blocks, about	A.D...1422
Letters cut separately of wood	1438
Do. do. of metal	1450
Do. cast in moulds	1456

So that little more than thirty years elapsed from the state of the Art at the time of printing the *Biblia Pauperum*, to the time of casting the first metallic type from the *foundery* of Gutenburg and Schoeffer.

Mr. Ottley maintains that of all the block-work so elaborately described by Heineken, only three, viz. the *Biblia Pauperum*, the *Canticles, or Hist. Virginis Mariæ*, and the *Speculum Humanæ Salvationis*, can claim any distinction as works of Art; and on this account considers these three as rather appertaining to the ancient Schools of Holland and Flanders, than to that of Germany.

Note (T.)

Execution of early Works involved in mystery and kept secret.

The mysterious concealment which attended the early performances in the Art of Printing, as well from blocks as from types, has left almost every thing to antiquarian surmise, especially respecting the original projectors. Inventors seldom foresee the utmost value of their τύχαι. Their only aim at first is to do something better or cheaper than what they see already done. The first object in printing figures of Saints, &c. was to imitate Drawings, as the first in printing books was to imitate MSS., and the care and accuracy necessary for this latter process accounts for the excellence of early Printing. Such, observes M. Beckmann, is the usual progress of inventions. After the invention of Printing, people endeavoured to make printed books as like as possible to manuscripts, because they imagined that this invention was to be approved only so far as it enabled them to imitate these, without observing that it could far excel the Art of writing. So when artists wished to make mirrors of glass, they would try to imitate the only mirrors known: those, namely, of natural glass or vitreous stones. *History of Inventions*, vol iii. p. 183. We conceive it also probable that the number of persons who obtained a comfortable subsistence by transcribing and copying and illuminating must have looked with so much jealousy upon this new craft, as often to make obscurity and secrecy essential to the safety of the craftsman.

M. Bartsch seems to think that the names of those who engraved such Works as we have just alluded to, viz. the *Biblia Pauperum*, deserve oblivion. He deems them to have displayed in these mere outlines such total absence of Art and ignorance of design, as to be unworthy of mention as artists; and even estimates them below the most insignificant cutter of models for cotton-printing. *Anleitung*, &c. vol. i. sec. 598. Our Countryman, Mr. Ottley, has made a different estimate; and has been at the pains, in his valuable Work, to give several fac-similes, of which he speaks highly as compositions, as possessing agreeable and graceful design, admirable draperies, sober dignity of style, and often a considerable share of grandeur. *Hist. of Engraving*, p. 111—171. We so far agree with M. Bartsch, however, as to regard the very early performers in wood (whether Italian or German) in the light of only a very dexterous description of mechanics employed to work upon and carve out a design already traced for them by a superior hand. Hence the name of the designer only has been sometimes transmitted, and mention very rarely made of the Engraver. The examples are numerous at the beginning of the XVth Century from the Presses of Mentz, Strasburg, and Haerlem. In Bartsch's *Peintre Graveur* will be found a multitude of names and monograms, which that author has rescued from the hiding-places to which antiquity had consigned them.

But, at the same time, we cannot imagine that any designer, conscious of superior skill, and jealous of his reputation, would intrust his labours so entirely to this executioner, as never to concern himself further. On the contrary, it may have frequently happened, that the employer was a far better workman than his *employé*, and it would always happen that the genius and inventive powers of the master-mind would be incessantly active in endeavours, by improving the *méchanique* of the Art, to give his printed works the best pictorial effect possible. And, indeed, so apparently difficult of execution are the cross-hatchings in several ancient specimens, that many authors, writers on Engraving, and themselves Engravers, have expressed a belief that the work was not performed by manual labour and care only, but must have been assisted by some unknown process. The cheapness of labour, however, in the days of Albert Durer makes this latter hypothesis unnecessary; besides that many admirable xylographic works in our own time prove the practicability of the manual process, which to an Engraver only on copper might seem next to impossible.

Great manual dexterity shown in ancient xylography.

Note (U.)

In the *Peintre Graveur*, vol. vii. p. 245. Strutt's opinion, and

Notes on Engraving.

follows Heineken) respecting two of this name, a senior and a junior Schaeufflein, is treated as merely conjecture. A mark of Schaeufflein was two baker's peels crossed. *Schaufel* means in German a peel, *Schaufelin* a little peel.

H. Schaeuffelin.

Several other Wood Engravers and designers connected with Nuremberg have their works both on wood and copper particularized in the *Peintre Graveur; e. g.* of *Henry Aldegrever*, (vol. viii. p. 455.) the pupil of Durer, are mentioned one wood-cut and 289 copper-plates one of them etched; (vol. viii. p. 362.) of *Wolfgang Resch*, (vol. vii. p. 473.) who designates himself *Formschneider*, one specimen in wood; of *Erhard Schoen*, (*Ib.* p. 476—481.) painter, at Nuremberg, who died about 1550, 40 cuts; of *James Binck* (vol. viii. 249.) one wood-cut and 97 copper-plates, one of them *à l'eau forte sur fer*. To these add *Nicholas Meldemann* (vol. vii. p. 482.) and *Hans Guldemund*, (ix. 150.) both of them card-makers or card-sellers (*cartiers*) of Nuremberg, and *Stephen Hamer*, (*Ib.* p. 151.)

H. Aldegrever.
W. Resch.
J Binck.
N. Meldemann.
H. Guldemund.
S. Hamer.

Of the cuts in a Poetical Work under the title of *Teurdunck*, fol. Nuremburg, 1517, reprinted 1519, Bartsch observes, *Ces estampes, au nombre de* 118, *ne sont pas d'une perfection égale. La différence qui se manifeste dans leur exécution, prouve qu'elles ont été faites par différens graveurs. Cependant il est certain qu'elles ont été toutes gravées d'après les dessins de Hans Schaufelein qui a marqué huit pièces de son chiffre: qui surpassent pour la fermeté du dessein toutes les autres; il est à croire que Schaufelein lui-même en a tracé le dessein sur les planches.* (*Ib.* vol. vii. p. 272.) In another passage the same author enumerates various causes for the great inequality of merit to be found in wood-cuts bearing the same cipher. Some of them, says he, are very fine, because the designer has himself drawn his own composition on the block, and the Engraver has had only the labour of cutting away with proper accuracy the intervals between the lines and hatchings of the design. Other prints, again, are of an inferior kind, because the Engraver has been only guided by a counter-drawing, (PAINTING, last note to Art. 216.) where the lines, after tracing, lose a portion of their originality and spirit. Others, likewise, are faulty, because the Engraver spoils the effect of some fine picture by working after an ill-drawn copy, of perhaps his own doing. Other prints, too, with even the advantage of good original composition, are sometimes but lamely executed, because only executed after slight sketches in bistre, to which the hand of a mere mechanicial Xylographer has been incapable of supplying the occasional imperfections of contour, together with the appropriate hatchings for parts shaded by a wash of colour, or by a stump. Lastly, a piece may be engraved with perfect neatness by an artist well practised in the use of his tools, and yet be quite defective in drawing; or, on the other hand, it may be admirably drawn, but executed in coarse and laboured endeavours by an unskilful hand. V. *Peintre Graveur*, vol. vii. p. 26.

Causes of inequality in Wood Engravings with the same monogram.

Note (V.)

For our further account of Holbein, see PAINTING, at p. 485. Mr. Ottley remarks upon the statement of Bartsch, quoted in the foregoing note, that a large proportion of the wood-cuts bearing the monograms or initials of Durer, and other eminent designers, may be fairly considered as engraven upon the wooden blocks by other hands; but, continues he, I can by no means persuade myself that the abilities of the ordinary Wood Engravers, who abounded in Germany at the close of the XVth Century, could have been such as to render them in any material degree instrumental in bringing about that sudden and almost miraculous improvement which took place in their Art at that period. They were uninstructed in the rudiments of design, and had been accustomed from their infancy to manufacture the barbarous wood-cuts used by the illuminists and venders of cards and devotional images, in which scrupulous exactness in the copyist would have been a mere waste of time; they must have been utterly incapable of comprehending or appreciating those delicate, but free and masterly touches which characterise the designs of a great and finished artist like Durer; and of consequence wholly unqualified to represent them upon the wooden blocks with any tolerable degree of fidelity. We may, indeed, suppose them to have handled the tools then used in their Art with that dexterity and ease which long practice ensures; but that is all; and it is probable that these tools were few in number, and but ill adapted to the complicated and delicate kind of workmanship that was required in Wood Engravings of so much more finished a character than those which they had hitherto been called upon to execute. I therefore consider it as certain that the numerous and flourishing School of Wood Engravers which we find spreading over Germany, and from thence to Italy, in the early part of the XVIth Century, owes its excellence to the great designers of that time; and especially to Albert Durer, who, I have no doubt, assiduously applied himself in his youth to the practice and improvement of the Art; and, afterwards, perceiving the advantages likely to be derived from it, taught it to numerous pupils, who, already grounded in the principles of design, and working constantly under his own eye, by degrees became qualified to assist him greatly in his numerous works of this kind, and, at length, perhaps, competent to the task of engraving the designs of their master even without his superintendence. My opinion is not a little strengthened by the circumstance of Durer having been himself the publisher of all his chief works of this kind; added to the fact, that of the years 1509, 1510, and 1511, in which so large a portion of his Wood Engravings were executed, we have scarcely anything by his hand engraved on copper. What has here been said of Durer will, I think, be found more or less applicable to other great artists of the German School, his contemporaries or successors, of whom we have numerous wood-cuts; and especially to Holbein, whose admirable designs, engraved with incredible delicacy on wood, adorn so many of the books printed at Basle and some other places, between the years 1520 and 1540. Among the productions of Holbein in this way is the justly celebrated series of the Dance of Death, of which the edition commonly thought to be the first was printed at Lyons, 1538, in small 4to., under the title of *Les Simulachres et Histori des Faces de la Mort*: the cuts are forty-one in number. Each cut is surrounded by a Latin text, taken from Scripture, and has underneath it four French verses. Mr. Ottley then goes on to show that the artist employed under the direction of Holbein to engrave most of these his designs in wood, and who, as appears from the first dedication of the work, died before their completion, was named (according to Jansen, *Essai sur la Gravure*, tom. i. p. 120.) Hans Lutzelberger. Eight additional pieces appeared in the edition of 1547, seven years before the death of Holbein. The original drawings for these eight, together with those for thirty-eight of the prints in the first edition, were in the possession of Jan Brockhorst, the painter, a contemporary of Vandyke. These drawings (executed with a pen) found their way, forty-six in all, into the cabinet of M. Crozat, and were disposed of at the sale of his collection. They were lent to Mechel, of Basle, who published Engravings from them in 1780. They are now said to be in the cabinet of the Emperor of Russia.

Artists on Wood.

Holbein's "Dance of Death"

Opinion of Mr. Ottley respecting Xylographic monograms.

Note (W.)

Strutt particularizes a singular chiaroscuro print, by the elder Mair, of the Virgin and Child, with Joseph holding a candle, and the date 1499. Respecting the later artist of this name, he regrets that he did not exercise his talent on any better subject than vignettes for books. Bartsch, in vol. ix. p. 597. of his *Peintre Graveur*, mentions Alexandre Mayer, but not as a Wood Engraver. Strutt, however, styles him such, as also a Paul Mair, supposed to be of the same family, but born at Nuremberg.

Family of Mair.

We might here introduce some others of the ancient School. *Johan Schnitzer*, of Arnsheim, engraved maps for the edition of Ptolemy, published at Ulm in 1486. *Lucas Kranach* is recorded by Bartsch (*Peintre Graveur*, vol. vii. p. 279.) as the author of 154 subjects in simple Xylography, the earliest dated 1505, the latest 1561. Six copper-plates, five of them portraits, are likewise ascribed to him. Of *Urse Graf*, who flourished at Basle in 1508, he records 17 pieces, (*Ib.* 456.) and but one copper-plate. Of *Hans Brusamer*, a painter, who lived at Fulda between 1537 and 1550, he describes 15 Xylographic pieces, and 24 copper-plates. (vol. viii. p. 455.) To *Hans Baldung Grün* he assigns (vol. vii. p. 305.) a selection of fifty-eight subjects. Baldung was also a painter in the style of Albert Durer, his contemporary; his drawing is not very correct, but there is fine expression in his heads. *Le chiffre composé d'un G nu milieu d'un H et d'un B attaché au dernier jambage est expliqué par quelques auteurs* Hans Bresang, *par d'autres* Hans Grunewald; *et par d'autres encore* Hans Baldung Grun. *Il n'est pas vraisemblable que trois artistes qui vivoient dans un même temps se soient désignés par un même monogramme. Peintre Graveur*, vol. vii. p. 301. Bartsch then goes on to prove that his *nom de famille* was not Bresang nor Grunewald, but Grün. His ordinary appellation, however, appears to have been Hans Baldung. He is said to have engraved on wood only; two copper-plates, however, are ascribed to him. (*Ibid.*)

Schnitzer
L. Kranach.
Urse Graf
H. Brosamer
H. B. Grün.

Albert Altdorfer, of Altdorf, (in Bavaria,) is among the reputed scholars of Durer; of his wooden cuts it is remarked, by Strutt, that Hans Holbein must have derived great assistance from them, since evident traces of Altdorfer's style appear in Holbein. Bartsch ascribes to Altdorfer sixty-three pieces in wood. He became a Senator of Ratisbon, where his family had been established; was appointed architect of that city, was highly respected, and died there, A. D. 1538. His copper-plates amount, according to the same

Altdorfer.

Notes on Engraving.

authority, to 96 pieces, 13 of them *à l'eau forte*. *Melchior Lorich*, or Lurch, born A. D. 1527, at Fleusburg, in Holstein, a Painter, Engraver, and Antiquary, is noted by Bartsch as the author of four works in wood, the last of which comprises a series of 127 cuts. The same author describes 16 copper-plates by Lorich, one of them etched, (*Peintre Graveur*, vol. ix. p. 500.) We may here subjoin the name of a supposed German artist, *Wendel Reich*, a Wood Engraver who lived and worked at Lyons, A. D. 1515. *Crispin Vanden Broeck*, a Flemish painter, born at Antwerp about 1530, engraved creditably both on wood and copper from his own designs.

Note (X.)

A "Knight-errant mounted and in complete armour, with his attendant by his side on foot," is the last of the ten described by Bartsch. The print is highly praised by Papillon, (tom. i. p. 387.) who ascribes it to some early German artist unknown to him.

The ninth volume of the *Peintre Graveur* mentions (at p. 407.) a specimen *de trois planches* on the subject of "Absalom slain by Joab," by an unknown master, whose style is thought to resemble that of Martin Van Veen, called *Martin Hemskirk*, from the place, near Haerlem, where that painter was born in 1498. The same volume, at p. 426, records a chiaroscuro by *George Matheus*, whose name appears in white characters upon the print thus, "Jorg Matheis, Furmschneider" (*here a word is imperfect*) "Angspurg." The execution is commended as extremely good, and the style as resembling the Italian School. Various other artists in chiaroscuro are enumerated by Papillon, but it seems doubtful whether they were the Engravers or only the designers.

Bryan (*Dictionary of Painters and Engravers*, 4to. 1816) ascribes a chiaroscuro, "The Kings of Israel," to *Lucas von Leyden*; and three cuts in chiaroscuro to *Lucas Cranach*, but does not give his authority, (probably Heineken.) This latter artist is hinted at under the name Lucas Cranis by Papillon, (tom. i. p. 392.) who mentions a chiaroscuro in his possession, dated 1508, with the mark of Hans Burghmair. *Cette estampe*, says he, *n'a que deux planches ainsi que les premiers camaieux.* (tom. ii. p. 390. see also Bartsch, *Peintre Graveur*, vol. vii. p. 198.) Papillon adds afterwards the names of several others. (*Ibid.* p. 400—407, and the whole of the following ch. iv.)

Note (Y.)

Papillon's instrument.

His principal implement seems to have been a kind of knife, the blade of which he describes to be about four or five inches long, formed of the same material as the springs for watches, and duly tempered. This blade was separable from the haft, and inserted through a longitudinal groove or slit, along the middle of a cylindrical wooden handle, of the same thickness as the breadth of the blade. The end of this handle, where the slit admitted the blade, was bevelled off on three sides, round which were cut several notches, for securing the blade firmly with a strong waxed thread. The remaining side of the handle was kept level with the edge of the instrument. The part of the blade intended for use was made to protrude about an inch and a half beyond the handle, and to be sharpened and pointed somewhat like a common penknife. When this part was worn away by use or broken by accident, the waxed cord that had been wound along the entire handle was loosened, and the blade drawn out to the same length as before, to be again sharpened, and again tied and adjusted for making incision on the wood. For cutting out any part two incisions at least must be made. The first of them Papillon calls *la coupe*, the second *la recoupe*. The former follows the direction of the line: the latter in the same direction cuts out a slice entirely from the block. And as two such slices must invariably be cut away on each side of every line in the work of the Wood Engraver, a great difference is manifest between his labour and that of the Engraver on copper. To produce a line which an Engraver performs on copper-plate at one stroke of his burin, requires on wood no less than four separate incisions. And the patience of the Xylographer is yet more put to the proof when he endeavours after cross hatching, which in Xylography has seldom, for ordinary purposes, been extended beyond two courses of lines.

Less time, however, is required for executing several courses in cross hatching than for a smaller number. In some instances (such as in many of the works of Thurston, mentioned in our last note to Art. 31.) every line of the hatchings has been first drawn by the designer with a pen or pencil on the block, and no more remains for the Engraver than the process (a process certainly that requires the utmost accuracy) of picking away those parts which must come out white in printing; namely, all the parts between the lines. The greater, therefore, has been the multitude of crossings, the greater will be the portion of surface to be left black, and the fewer interstices he will be required to pick out.

Instruments for Engraving.

Concerning some of the instruments for simple Chalcography, such as the *burin*, and the *dry point*, and the *scraper*, some account has been already given. (See second note to Art. 19, and Note B.) In Chalcography, as in Wood-Engraving, the form and thickness of the graver must be suited to the kind of line to be drawn. It has been the practice to support the copper-plate, during the work, upon a round cushion, or leather bag filled with fine sand, and varying in size according to the dimensions of the copper, so as to be generally about nine inches in diameter and three in thickness. Resting upon this sandbag the plate of copper or steel is held in the left hand, and either kept steady, as in cutting straight lines, or turned about in a direction to meet the course of the graver, as in forming curves. The Abbé Longhi invented a movable table, (pl. i. fig. 8.) in which the copper-plate A is attached to a movable board B by screws. The board that supports the plate may readily be inclined at any given angle by means of the resting table C and support D. Immediately beneath A is placed a strong iron axis, on which the plate is also made to revolve: and in order to diminish the friction which would otherwise arise from the weight of a large plate the board is supported by friction rollers. A number of holes may be made in the board, to receive, alternately, the iron axis; so that the centres are readily changed for the various lines that may be required.

Abbé Longhi's invention.

Very broad strokes should be made of several lines very close together, and cut till they are a little below the general surface of the copper. By this means, the bottom or channel of a broad stroke is sufficiently rough to retain the ink, and not so deep as to overload the paper with it. As depth of lines depends upon the degree of pressure from the hand, so clearness of lines depends upon the habit of producing them at one cut. Observe, in using the scraper (Note B.) for removing faults in the work, to incline its edge to the copper, so as to scrape it evenly, and that no false strokes or scratches may be left upon it. For removing these, another instrument is necessary, called a *burnisher*. (See pl. i.) When rubbed upon the copper, it clears away all roughnesses, polishes the surface, takes out such lesser defects as do not require the scraper, and reduces such lines as have been cut too deeply. Another implement is the oil rubber, (*Ib.*) consisting of a roll of felt or linen cloth dipped in olive oil, which, tinged with a little lamp-black, sinks into the strokes, and gives them a blackish appearance, that the artist may from time to time form a judgment of his work. The oil rubber, however, must be used gently, and as seldom as convenient, since whatever takes off the sharpness from the edges of the engraved lines diminishes the sharpness of the impression. An *anvil* or *punch* (*Ib.*) is also occasionally wanted to place the plate upon in hammering out the hollow parts or erasures made by the scraper. When the surface is made as level as the hammer can make it, the burnisher is next applied, and the whole polished with a piece of good charcoal. The burin is sharpened from time to time in the same manner as a chisel, by rubbing the lozenge or bevelled surface on a proper oil stone, which must be made of the best Turkey hone. The temper of the steel is generally too hard in a new burin just bought, but improves and softens after a little grinding and whetting. A *screen*, formed of tissue paper pasted upon a slight frame, is generally placed in a sloping direction before the window at which the artist sits, to keep off the glare of light, which, falling otherwise upon the metal surface, prevents him from seeing properly his work. In order, too, that his print may come out creditably from the press in the spirit of its original, every line must be represented in reverse with perfect exactness. He places, for this purpose, the original opposite to a *mirror*, so that he can see the reversed picture, and compare with it his engraved representation on the copper. This mirror, it is obvious, must, throughout every branch of Engraving, be often necessary.

Execution of broad strokes on copper-plate.

Scraper.

Burnisher.

Oil rubber.

Anvil.

Screen.

Mirror.

Note (Z.)

The following are among the principal, with the dates when they flourished.

Spanish Engravers

A. D.	At Madrid.
1524.	*Juan de Diesa.*
1583.	*Vicente Campi*, of Cremona, painter.
1603.	*Francisco Lopez*, painter, etched.
1609.	*Diego de Astor*, of Toledo.
1615.	*Patricio Cazes*, or Caxete, of Arezo.
	Horacio Borgiani, of Rome.
1619.	*Pedro Perret*, of the Low Countries pupil, at Rome, of Corn. Cort. (Art. 36.)

Notes on Engraving.

1626. *Alardo de Popina.*
1629. *Martin Rodriguez.*
1630. *Vincencio Carducho*, painter, of Florence, etched and engraved
Juan Schorquens, of Flanders.
1634. *Juan de Courbes.*
1640. *Pedro de Obregon*, pupil of Carducho, etched.
1642. *Francisco Navarro.*
1643. *Maria Eugenia Beer*, pupil of her father, a Flemish painter.
1646. *Francisco Fernandez*, painter, pupil of Carducho above named, etched.
1650. *Cornelius Schut*, of Antwerp, painter, pupil of Rubens, etched.
1660. *Pedro de Villafranca Malagon*, pupil of Carducho above named.
1671. *Martin de Rossvood*, of Flanders.
1680. *Gregorio Fosman*, of Flanders.
1691. *D. Josef Garcia.*
1692. *Luca Jordan.* (Giordano,) of Naples. (Art. 45. and PAINTING, p. 478.)
1697. *D. Marcos Orozco.*
1734. *D Andreas Procaciai*, of Rome.
1740. *Fr. Matias Irala Yuso*, a Franciscan friar, and several pupils.
1748. *D. Vicente de la Fuente*, pupil of Irala.
1752. *D. Juan Bernabé Palomino.*
1754. *Manuel de Chozas*, *Nemesio Lopez*, *D. Juan Minquet*, } his pupils.
1770. *D. Carlos Casanova.*
The three *Tiepolo*, of Venice. (Art. 51.)
D. Tomas Francisco Prieto, and his daughter, *Donna Maria de Loreto Prieto.*
1776. *D. Josef Murguia*, pupil of Palomino.
1778. *D. Francisco Casanova*, son of D. Carlos above named.
1793. *D. Juan Fernando Palomino*, son and pupil of D. Juan Bernabé above named.
1795. *D. Simon de Brieva.*
1797. *D. Carlos Josef Flipart*, pupil of Wagner. (Art. 50.)

At Seville.

1584. *Mateo Perez de Alesio*, of Rome, painter; (a pupil of Michel Angelo, PAINTING, p. 471.)
1627. *Juan Mendez.*
Bartolomé Arteaga.
1634. *Isaac Lievendal.*
1647. *Francisco Heylan*, of Flanders.
1660. *Pedro de Campolargo*, painter.
1672. *Francisco de Arteaga*, son of Bartolomé above named.
1689. *D. Juan de Valdez Leal.*
Matéas de Arteaga, his pupil.
1698. *Juan Perez*, pupil of M. de Arteaga.
1724. *D. Lucas de Valdes*, son and pupil of D. Juan above named.
1777. *D. Manuel Lopez Palma.*

At Valencia.

1654. *Juan Felipe.*
1712. *D. Vicente Victoria*, painter, pupil of Carlo Maratti. (PAINTING, p. 474.)
1746. *D. Juan Batista Ravanals*, engraved portraits.
1752. *D. Francisco Giner.*
1762. *D. Hipólito Rovira Brocandel.*
Vicente Galceran, pupil of Rovira and of Ravanals above named.
1773. *Tomas Planes.*
1784. *D. Josef Espinós*, painter.
1793. *D. Pasqual Cucó.*

At Zaragoza.

1548. *El Maestro Diego.*
1629. *Josef Vallés.*
1638. *Juan Vallés*, brother of the preceding.
1666. *Juan de Renedo.*
1737. *Fr. Angel de Huesca.*

Note (AA.)

Preparation of copper-plates for Engraving.

In our comparison (Art. 32.) of Wood-Engraving with Chalcography, we omitted mention of the necessary preparation of the copper-plate before the burin can be applied to it. The plate, after being well hammered, is carefully polished with the following substances: 1. with pumice stone, till the inequalities caused by blows from the hammer disappear; 2. with a kind of slate called water of Ayr stone, which removes the scratches made by the coarser material; next with smith's coal or charcoal, which effaces the finer scratches made by the slate stone; (water in considerable quantities is used with the above-named materials;) and, lastly, the final polish is given with an oil rubber. Plates for aquatinta require a higher polish than for other kinds of Engraving.

Etching.

Next, for transferring the outline to this smooth surface, a tracing ground or varnish must be spread over it. Among the many varieties of varnish for this purpose, not differing essentially from each other, the following recipe is given by M. Bartsch: 2 ounces of virgin wax; 1 ounce of asphaltum; ½ ounce of colophonum, or black pitch; ½ ounce of mastic, or Burgundy pitch. After these materials have been well boiled, roll the mass into sticks or balls, and tie up these closely, when quite cold and hard, in bags of taffeta or fine linen. To spread the varnish on the plate, let the latter be warmed over a pan of burning charcoal. The ball being applied to the surface of the warm copper, discharges through the bag the melted varnish; to spread which evenly, use another ball stuffed with wool or cotton, covered with taffeta, till, by dabbing the mixture in a liquid state, a smooth thin coat is laid over the whole. This coat, when quite cold and hard, may be coloured either black or white, thus: for a white ground, prepare a wash of Kremlin chalk, ground perfectly fine in gum water, and pass it over the varnish with a large brush; for a black ground, tie four or five yellow-wax tapers in a bundle, and, while the plate is still hot, hold them lighted under the varnished surface so as that their smoke shall ascend to and touch it, incorporating itself with the varnish.

The tracing ground.

The back of the drawing (of which only an outline is necessary) is next rubbed with the dust of red chalk, and the paper fastened at each corner with bits of waxed pitch (cobbler's wax) to the plate. The artist now traces his outlines with a blunted steel or ivory point, and, on removing the paper, finds them transferred in red to the varnish. This transfer answers equally well for a black or for a white ground. But he may, upon a black ground, vary the process so as to obtain an inverted copy of his drawing, by wetting the paper thoroughly, and laying the other side, which contains the drawing, (outlined in red chalk or black-lead pencil,) upon the varnished surface. He then passes the whole through a rolling press. The damp penetrating the paper discharges during this pressure the chalked or pencilled outline, and transfers it to the plate: the chalk keeps its natural colour, but the pencilled lines have a shining, silvery appearance, sufficiently distinguishable upon the dark ground. After the drawing has been thus outlined upon the varnish, the strokes are retraced by the artist with a sharp etching needle, (Art. 45.) so that the copper becomes slightly indented or furrowed. This done, the plate is again warmed upon a charcoal fire; and, being cleansed from the varnish, shows the outlines, within which the Engraver proceeds to employ his burin (Note B.) and to begin his shadows and hatchings.

Transfer of the outline to the plate.

Note (BB.)

The Aizwasser, or fluid for corrosion.

In etching, the strokes and dots, instead of being cut by a tool, are corroded by an acid, generally nitric acid, diluted with an equal quantity of pure rain water. The admixture, however, of water to the amount of four times the bulk of the acid is most convenient. It must be well secured in bottles with a glass stopper. For etching on steel, a mixture, containing equal parts of corrosive sublimate and of powdered alum, (about one quarter of an ounce of each,) dissolved in half a pint of hot water, has been successfully used. The plate is first covered with a resinous substance called the ground, impervious to the acid employed, and the lines intended for corrosion are made by removing the ground with pieces of steel wire called etching needles, of several thicknesses, according to the fineness of the strokes required; of about two inches long, inserted into handles the size of a common lead-pencil, and made of hard wood. For strong coarse lines, oval pointed needles are used. The instrument called the dry point may be used as an etching needle, or *vice versâ*, only that in etching the point seldom requires to be forced so deeply into the metal.

Etching needles.

The plate being polished as described (AA.) is heated over charcoal embers, or in a common oven, and the resinous mixture or ground spread over it, similarly to the mode stated in the above note. We may here observe that, for holding the metal in any case where heating is required, a hand vice or pair of pincers will be necessary, which may be applied on the margin of the plate, so as to keep clear of the work. To prevent scratches, put a slip of paper next the plate. Three sorts of ground have been in general use, the *hard*, the *soft*, and the *common* ground.

Notes on Engraving

For the hard ground, used by Callot, (Art. 51.) and called the Florence varnish, take four ounces of very clear linseed oil, such as is required by Painters; heat it in a clean earthen pipkin; then add to it four ounces of powdered gum mastic, and stir the mixture briskly till the whole be well combined. After this, press the whole mass through a piece of fine linen into water, and form it into balls about the size of walnuts, or a little larger. The balls may be then tied up in readiness for use, as described above. For a *soft* ground, take one ounce of white or bleached bees' wax, one ounce of asphaltum, half an ounce of common pitch, and half an ounce of Burgundy pitch. Melt the wax over a slow fire in a pot of glazed earthenware; add to it, by little and little, the rest of the ingredients, stirring the mixture all the time it is on the fire. It must be kept carefully at a low heat, to prevent its burning. When the composition is thoroughly melted and incorporated, take it off the fire, pour the entire mass into a vessel of clean warm water, and knead it into balls of the size already described. Observe that the ground must be made rather harder in summer than in winter. It is hardened by increasing the quantity of asphaltum, or by letting it continue to boil some time after the ingredients have become incorporated. For what is called *common* ground, as being most extensively used, the celebrated Lowry, whom we have mentioned (last note to Art. 13.) composed a common ground with three parts of asphaltum, two of Burgundy pitch, and one and a half part of white wax. The asphaltum must be melted first, and the other ingredients added as soon as it is in a state of fusion. The whole, when thoroughly mixed, is poured out into warm water, and kneaded into balls. This ground is excellently adapted to a temperate atmosphere. For very cold weather, the composition may be softened by increasing, in a small degree, the proportion of pitch. For very hot weather, it may be hardened by longer boiling than usual. Le Bosse, a celebrated etcher of the French School, recommends in his Treatise on the Art the following common ground: one ounce of whitest virgin wax, the same quantity of powdered mastic, and half an ounce of calcined asphaltum. Let the mastic and asphaltum be ground separately, and pulverized as fine as possible; and let the wax be melted in a glazed earthen vessel. Sprinkle the mastic gently into the melted wax, stirring the mixture that it may incorporate thoroughly; then sprinkle the powdered asphaltum into it, and continue the stirring over the fire till this ingredient likewise is completely dissolved. Remove the vessel that the composition may cool, and then pour it into warm water to be kneaded as before described.

The hard ground.

The soft ground

Lowry's common ground.

Le Bosse's ground.

To spread the etching ground, the etcher proceeds in the same manner as the burnisher for tracing his outline. (Note AA.) A dabber, consisting of a little cotton tied up in a piece of silk stuff in a hemispherical form, of about two inches in diameter, is here also requisite. To preserve its shape, he sometimes encloses behind the cotton a circular piece of pasteboard. Let us now suppose the ground spread and cooled on the copper; the next step is to transfer the drawing: this may be done as described above. (*Ibid.*) If transparent paper or oiled paper be used, let the outline be drawn upon it with a pen dipped in Indian ink, mixed with a little oxgall. A piece of thin paper, the same size, may then be rubbed entirely over with red chalk, and placed under the drawing, with the chalked side next to the plate. If the drawing be laid with its inked side downwards, the outlines may be easily traced on the back of it, as the inked lines will be distinctly visible through the transparent paper; in which case, the design on the ground will be reversed, and the future impression from the plate will resemble the original. If a contrary effect be desired, the artist needs only trace his outline over the drawing itself

The etching needle is next to be used, and the outlines and shadings scratched through the varnish, which, having been blackened in the manner above stated, (*Ibid.*) shows every stroke distinctly on the bright copper. As the heat of the hand would injure and dislodge the ground, a bridge or rest is placed across the plate, and supported by a thin piece of wood at each end. During this stage of the process, whatever portions of the varnish are raised by the needle must be carefully brushed away, and not suffered to stop the lines. And if, on examination previous to the use of the acid, any mistakes or improper strokes have been made, or the ground any where broken up, a composition, called the *stopping* mixture, may be applied. It is composed of turpentine varnish and lamp-black. M. Bartsch's recipe, who calls it covering varnish, (*deckfirniss.*) is grease, yellow wax, and a few drops of olive oil, boiled well together, and mixed with a little lamp-black. For etching on copper as well as on steel, the common Brunswick black of the shops, diluted when necessary with a little turpentine, is employed. The stopping mixture may be applied to the ground with a camel's hair pencil; and, when dry, answers the same purpose as the original ground, being capable either of wholly resisting the acid, or of being traced upon with the needle so as to admit the acid partially.

How to use the etching point.

Mixture used for *stopping out.*

Etching.

The work of the etching needle is now over; and the etcher next surrounds his plate with a wall or border about an inch in height, composed of bees' wax, softened by the addition of one-third of Burgundy pitch, or tallow. This mixture, after having been melted over a slow fire, and increased by a gill of olive oil, is poured into water, and preserved for use in balls or rolls. When applied to the plate, the bordering wax will not work freely until softened in warm water; but may then be easily moulded by the fingers into a ribbon-like shape, for surrounding the margin of the work. The nitric solution being now poured upon the plate to the depth of about half an inch, the acid will speedily begin to bite or corrode the metal in those parts which have been laid bare by the needle. The moment the acid begins to act, bubbles will rise; which, as fast as they appear, must immediately be cleared away with a feather, both from the surface and from such of the strokes as they adhere to. In etching on steel, the peculiar acid used gives out no bubbles, and, therefore, greater care is taken to proportion the strength of the liquid to the exact time for it to remain on the plate. When all the finer lines are bitten to a sufficient depth, the nitric acid is poured off by a spout, which has been left for that purpose at a corner of the border, and stopped for the time with a separate piece of wax. The plate is now washed with water, and the parts which are supposed sufficiently bitten are covered as soon as dry with the stopping mixture.

Wall of bordering wax raised round the edge of the work.

The work of corrosion is then resumed; the spout again filled up; the acid poured again on the plate; and these operations repeated until all the shadings, according to their respective degrees of strength, are bitten into the metal. The plate, after washing, is next heated; the waxen border taken off; and some drops of olive oil rubbed on with a linen rag, and afterwards with the *oil rubber*, (Note Y.) to remove the ground. Whatever dirt remains in the lines may be cleaned away with spirit of turpentine.

To determine how long the acid should remain on the plate, it is usual, during the intervals for washing the work, to scrape off a small portion of the ground to examine the bitten lines; but the better and surer way is to make a previous trial with the same liquid, to corrode similar lines on a small separate bit of metal, minuting the process from the moment the bubbles appear. Fine delicate work is quickly etched, but the aquafortis requires longer time to eat into broad strokes. For fine lines, the usual time allowed is from half an hour to one hour. But some etchings require a day, or even several days. The influence of weather is remarkable. The same acid on the same copper, in different temperatures, will have different effects. Cold or damp will materially weaken or retard its action; and a change is discoverable even from the sky being overcast with clouds during the process of corrosion.

Time required for *biting in* on copper-plates.

On examination of the work, either before or after a proof-impression, such lines as are too strong or overbitten may be reduced with the burnisher; or if much too deep, may be rubbed down with charcoal. On the other hand, such lines as are too feeble may be rebitten in the following manner: discovered, it is said, by William Walker, who, with his brother Anthony, flourished in London about A.D. 1760, and engraved jointly with him for the Boydell collection. William, on being one day taunted by his brother and instructor for defective colour in his etching, conceived the project of laying on the coat of varnish, or etching ground, a second time, so as that it should not enter the sunken lines, but only lie as before on the polished surface of the copper. Regarding his experiment as similar to the process by which printers blacken their type, he employed like them his dabber; and this expedient, to his infinite delight, and that of Woollet, to whom he communicated it, succeeded beyond expectation. The operation, however, is extremely hazardous, and requires a delicate and well-practised hand. A little of the etching ground being melted on a separate piece of copper may be taken up by the dabber, and dabbed lightly upon the part to be rebitten in such a manner that it may not enter the former strokes, but merely adhere to the uncut portion of the plate. The dabbed part is then surrounded with a wall of wax, and the acid used in the customary manner. The strokes to be rebitten must first have been entirely cleansed with spirit of turpentine, and rubbed afterwards dry with bread crumbs.

Walker's method of rebiting.

It is calculated that ten etched plates can be executed in the space of time required to complete with the burin a single one. The number, indeed, of impressions that can be taken, must depend on the depth of the etched lines. Acid, much diluted, and applied for a short time to delicate work, can only bite superficially. Coarser and broader lines, having necessarily been submitted for a longer period to the action of the aquafortis, are not so soon effaced in printing, must be deeper, and may be therefore more deeply charged

Etching more expeditious than work with the graver.

Number of impressions.

Notes on Engraving.

with colour. In general, a well-etched plate is reckoned to furnish 500 strong and good, and the same number of weak, impressions.

Etching on Steel.—The principal difficulty in etching upon steel, at its first introduction, was to find an acid which would corrode the lines smoothly, and to a sufficient depth. We need scarcely remind a chemical reader that iron is subject to two states of oxydation—the protoxyd and the peroxyd; and that each of these will combine with acids forming two genera of ferruginous salts—the protosalts, and the persalts. The protosalts contain a larger proportion of oxyd than the persalts; and being liable to pass into this latter state by exposure, for even a very short time, to the air, they become turbid, and deposit peroxyd of iron in a state scarcely at all soluble, except by being digested in hot acid, combined with some deoxydating substance. Hence it is that the action, on steel, of nitric acid diluted with water will not give the same satisfactory results as on copper. For, although it acts very properly at first, while the iron is brought merely to the state of protoxyd, yet, during the necessary exposure to the air, it passes to the state of peroxyd; a portion of which precipitates and fills up the lines of the etching, covering the surface of the steel at the bottom of those lines, and thus impeding and rendering irregular the process of corrosion.

Chemical difficulties in etching upon steel.

Mr. Turrel's menstruum for biting in on steel.

In 1824, a menstruum for biting in on soft steel was communicated to the Society of Arts by Mr. Edmund Turrel, consisting of a mixture of pyroligneous and of nitric acid, combined with a portion of alcohol. This artist, with scientific sagacity, conceived that the nitrous æther resulting from such a combination would retain the nitrate of iron in its state of protonitrate, and, consequently, prevent the precipitation. His judicious experiment obtained the wished-for result. The proportions of his menstruum are, four parts (by measure) of the strongest pyroligneous acid (chemically termed acetic acid) and one part of alcohol, or highly rectified spirits of wine: mix these together, and shake them gently for about half a minute: then add one part of pure nitric acid. A menstruum, compounded in these proportions, corrodes very light tints in about one minute, or in one minute and a half; and considerable depth and force are attainable in about a quarter of an hour. The process may be quickened or retarded by the greater or less proportion of nitric acid. The plate, when the mixture is poured off, must be instantly washed with a compound of one part alcohol mixed with four parts water. For *stopping out* on steel, the best material, according to the last-mentioned discoverer, is pore asphaltum, sufficiently dissolved in essential oil of turpentine to flow freely from a hair pencil. The foregoing menstruum, as well as others since tried, will succeed with hard steel; but they are by no means so effectual as upon very soft, or nearly decarbonated steel. Engraving, indeed, on steel (so as to compete successfully with copper-plate) must date its origin from the introduction by Mr. Perkins (see last note to Art. 32.) of means for softening steel plates.

Mr. Cooke's menstruum.

In 1825, an improvement of this menstruum was brought forward by Mr. W. Cooke, jun., who was rewarded by the Society with their gold Isis medal. Mix, by gentle shaking, six parts of acetic acid with one part of nitric acid; let this remain only half a minute on the plate, which must, immediately after, be well washed with water, and then dried, but not with the assistance of heat. Stop out the light tints, as on copper, with Brunswick black varnish; and then, for the purpose of washing the oxyd out of the lines, pour on the plate a mixture of six parts water and one of nitrous acid. Let it remain two or three seconds. When it is taken off, let the former mixture be re-applied immediately, without the intermediate ablution in water. Repeat this process for each tint. A temperature of 60°, or higher, is required for the operation.

Menstruum of Mr. Humphries.

In the following year, a similar premium was adjudged to Mr. W. Humphries for his menstruum, as follows: dissolve a quarter of an ounce of corrosive sublimate powdered, and the same quantity of alum, likewise powdered, in half a pint of hot water. Let it cool before use; and, while using it, keep it stirred with a camel's hair brush, taking care to wash the plate thoroughly after each biting. As this acid becomes turbid, it may be prudent, says the inventor, never to use any portion of it a second time. See *Transactions of the Society of Arts*, vol. xlii. p. 55. xliv. pp. 48 and 53.

Etching on glass, a French discovery.

Etching on Glass.—Although this Art has no connection with printed impressions on paper, it has been usually included by Encyclopædists in the same article with the process we have been detailing above. The discovery appears to have been suggested towards the close of the last century by the experiments of the French Chemists. M. de Puymaurin having covered a piece of glass with a coat of wax, and drawn some figures on it, applied fluoric acid over his performance, and exposed it to the sun. He observed, soon afterwards, that the lines he had traced were covered with a white powder, indicative of the dissolution of the glass. After four or five hours, on removal of the coat of wax, he found an etching perfectly formed on the glass. M. de P. tried several varnishes for a ground, and found a strong varnish composed of equal quantities of drying oil and mastic the best. The glass, before applying it, must be thoroughly cleaned, and heated until the hand can scarcely be held upon it. The varnish is then applied lightly, to cover the glass, and laid smooth by the dabber, as in etching upon metal. The smoke of wax torches is next used, to blacken the ground; and the intended etching traced upon it. But in tracing the design, the glass plate must be supported on a glass pane, fixed like a desk, so as that the light may show through the lines made by the etching point. The fluoric acid is not applied in its simple form, but is exhibited as found in the fluor or Derbyshire spar, finely pulverized, and is expelled from the spar in a gaseous state by the addition of a little sulphuric acid. The fluor spar must, therefore, be enclosed in some vessel capable of resisting the acid. The fluoric acid, for instance, which is distilled in a glass retort, loses its strength, and bites unequally from the admixture of the silicious earth of the retort with the sulphuric acid. An improved silver apparatus, therefore, is recommended. Also, the glass to be corroded ought to be placed under some apparatus which will prevent the escape of the gas. The appearance of the etched parts is like that of ground glass, and forms an excellent contrast with the remaining polished surface. All sorts of glass will not serve equally well for etching. English glass, in the composition of which there is a large proportion of lead, is easily acted upon by the acid; but the smallest defect in the varnish admits the corrosive matter, and, by solution of the calx of lead, a disagreeable tinge is given to the glass. Plate glass is the fittest material: not that with a green but with a white reflexion. When the weather in summer is clear and serene, a piece of plate glass, varnished, traced, covered with the acid, and exposed to the sun, is completed in four or five hours. In winter, the operation of biting requires four days, and must then be assisted by a moderate and regulated heat, like that of an oven or stove.

Etching, Punching, and Mezzotinto.

Note (CC.)

Instruments for punching

The process, as described by M. Bartsch, (*Anleitung, &c.* vol. i. sect. 62.) is as follows: After the outline has been traced on the copper, according to the method already stated, (Note AA.,) the operator is provided with small rods of hardened steel, three or four inches in length, and about one-twelfth of an inch thick, having one end in the form of a truncated cone. This truncated extremity is either provided with small pointed teeth, placed close together, or is indented with small holes; but in some, the instrument terminates in one sharp apex, like the dry point. With these small rods of steel, which are termed *punches*, the intended shadings and lines of the work are beaten by the strokes of a small hammer into the plate.

Number of impressions from punched plates.

The number of prints which may be taken from a plate, wrought in this manner by punching, depends upon the depth of the holes or indentations; but it will be scarcely ever found to yield as many impressions as a plate slightly etched. There are very few specimens of this kind of work. The prints are distinguishable by being composed entirely of dots, greater or less in magnitude, and round or oblong in form, but never so sharp and clear as those from the dry point, since the printing ink must adhere unequally to the rough surface thrown up by the punch.

Note (DD.)

Instrument for mezzotinto.

The cradle, or grounding tool, is an instrument in the form of an axe, (plate i.,) having teeth placed close together, like those of a small-tooth comb, in lieu of an edge. The term *berceau*, or cradle, is given to this instrument, from the similarity of its motion when in use to that of a cradle when rocking. The supports of a child's cradle must, for the purpose of rocking, take a curved form like the edge of this instrument, or of an axe. The curve of the graving tool should be a portion of a circle, of which the radius does not exceed six inches. If too much curved, the cradle would dig too deeply into the copper; if too little, the plate would not be sufficiently indented.

By referring to our remarks on chiaroscuro (Painting, p. 580, Art. 290, *et seq.*) the reader will perceive that the expression *mezzotinto*, or middle tint, is only applicable to this method, as providing means by which the really middle tints may be obtained through the subsequent use of the scraper. The first and the peculiar part of the process is to cover the plate with the extreme dark, No. 5. (Painting, *ib.*) The plate, after being polished and prepared as for other work, is divided equally by lines drawn in soft chalk, parallel to each other. The interval between the lines should be about one-third the length of the face of the cradle or grounding tool, which is then to be placed between the two first lines at the top of the plate, and passed forwards *in the same direction* with them. The operator must hold the tool as steadily as possible, and quite upright,

Notes on Engraving.

pressing upon it with a moderate force, and rocking it from end to end, parallel to these two guiding lines, till he has completely hacked all that part of the Plate between them. He next repeats the same operation with respect to all the other lines and intervals, till the instrument has passed over the whole Plate, rendering it uniformly rough throughout. Other lines must now be chalked upon the Plate at *right angles to the former*, and proceeded with in the same manner. They will form squares with the lines first drawn. When the Plate has been again passed over by the cradle in this direction, it is next to be proceeded with in the same manner, *diagonally;* the diagonals being drawn to the squares in question. This done, the operator next employs his instrument upon the diagonals drawn, as follows: Let each square be supposed divided into three equal parallelograms, as in pl. 1, fig. 9. The diagonals to these parallelograms will then form two other sets of lines for the guidance of the grounding tool: and to obtain them, nothing further is required than a division of two opposite sides of each square into three equal parts, with lines intersecting them, as expressed by the dotted lines in fig. 10. A Plate, entirely covered with these several crossings worked by the cradle, is said to have undergone *one turn*. But, in order to procure a very dark and uniform ground, the Plate must undergo a repetition of all these several operations for above twenty times; for which purpose, the Artist must always begin each turn by starting from the same point and in the same direction, that is to say, between the same parallel guiding lines as at first; so that this preparatory work employs much time and pains. According to M Bartsch, a Plate of two feet long and eighteen inches broad requires the labour of three weeks to produce a fine jet black impression; and, for a larger Plate, even a month or more is required. We are disposed to think that, in this age of mechanism—the "age of steam"—some method might be devised for abridging this manual labour, and accomplishing with equal, or perhaps superior, accuracy the same results.

Preparation of Plates for mezzotinto.

The fineness of the grain thus obtained depends upon the size of the teeth in the graining tool. Cradles, having broad, coarse teeth, enable the Plate to furnish more impressions, and give the dark shadows a softer black: but then the dots at each crossing are, in such a case, visible in the lighter tones; and produce difficulties, or, at all events, a disagreeable effect in the minute details of a picture.

In describing former methods of Engraving, we have considered the Plate of copper or of steel (previously to any lines etched or engraved upon it) as resembling a sheet of white paper, on which the Artist is to draw and work up his intended effects by lines of various strength or delicacy, leaving only those portions of the surface blank or untouched which are designed for *extreme light*. (PAINTING, p. 580, art. 290—294.) The method we are now considering is the complete reverse of the former. He must now look upon his Plate as if it was a sheet of drawing paper totally black. His business, therefore, now is to arrive at the middle tints, and extreme lights, by removing, more or less, the graining ground from the Plate; and this he effects with scrapers, similar in form to the instrument before mentioned, (Note B.) but of different sizes, that is to say, with lancet points of different widths, according to the degree of nicety or minuteness required. The masses of strongest light are first scraped and rendered pretty smooth; and some parts, such as in a head, the tip of the nose, &c. are burnished. The burnisher is likewise applied to such gradations of shading as go off into extreme light in their upper part, but are brown (that is to say, scraped to a middle tint) below. The next degrees, or rather diminutions, of shading are then scraped; and after them, the reflected lights. At this stage of the work, the Plate may be blackened, to ascertain the effect, with a printer's blacking ball; and then the operator is to proceed again with the scraping tool, taking care always to begin from those parts of an object where its strongest lights are to appear.

Mezzotinto scrapers.

Their form and uses.

If the graining of a scraped copper-plate be not particularly fine, it will furnish one hundred, or even one hundred and fifty impressions; but after the first one hundred and fifty impressions have been taken from it, the practice is to work it again partially over with the graining tool, and afterwards with the scraper. In this way, impressions by fifty at a time may be repeated in succession, so that the same Plate, says M. Bartsch, has frequently yielded three or four hundred impressions.

Number of Impressions from copper-plates.

Mezzotinto on Steel. This discovery enables the Artist to obtain for his work eight or ten times the number of impressions as from copper-plate. The same mode of operating is adopted as on copper-plate; only, greater strength must be used for laying the mezzotinto ground. A greater number of *ways* is likewise required. A *way* is the technical word for going entirely over the plate with the grounding tool. Mr. Lupton, who obtained in 1822 the gold Isis medal from the Society of Arts for an engraved portrait on steel, remarks, in his letter to the Society, that he has used as many as ninety ways on some steel-plates; whereas, on copper, the usual number is from twenty-four to thirty-six or forty. Great care is necessary to prevent the Plates taking rust.

amber rom steel.

Mezzotinto.

The suggestion of mezzotinto from steel was made in 1812 by the late Mr. James Watt to one of our most eminent living Engravers, who subsequently communicated in a letter, published by the Society of Arts in their Transactions, (vol. xlii. p. 55,) some interesting particulars on the subject. The writer remarks that his attempts upon hard steel, in consequence of Mr. Watt's suggestion, were unsuccessful; but the subsequent production by Mr. Jacob Perkins of Plates of steel, sufficiently decarbonized and softened to receive impression from the grounding tool, enabled him to accomplish every thing required. He adds that, in Engravings upon steel, "the tones are far better defined than those obtainable from copper: the clearness of the lights carried to much greater perfection; and the darks distinguished by superior richness. Although the process is much longer and more tedious on steel than on copper, yet, when completed, it is so perfectly satisfactory as fully to reward the additional labour." See Letter from Mr. C. Turner to Mr. Solly, published as above stated, and bearing date Oct. 14, 1824.

Origin of mezzotinto on steel.

its advantages.

Note (EE.)

The advantage of mezzotinto Engraving consists in the soft gradations of light and shade. As no lines nor strokes are visible, Prints of this kind appear executed with a brush, and finished with the most delicate softness. Naked figures, and every soft or smooth object, like hair or fine drapery, may be faithfully and perfectly expressed. The only difficulty consists in representing the lesser details, for which purpose the scraper is insufficient, especially in a coarsely ground Plate.

Softness the characteristic of mezzotinto.

Some Artists have endeavoured to give the requisite decision to the outline by means of the burin or by etching; but their attempts have been unsuccessful, since the usual harshness of the lines thus superadded forms too strong a contrast with the softness of the mezzotinto, and, consequently, cannot easily be brought to harmonize with the rest of the performance. The only person, according to M. Bartsch, who has successfully introduced a series of lines and dots into some Engravings of this kind, is our venerable Countryman, Richard Earlom. But his lines and dots are not so much employed to define the outlines (especially in the masses of light) as here and there to give greater force where the representation demands it, and to produce a deeper black, for which the graining alone, even when left quite rough, is insufficient. For this purpose, his series of lines are not, as might be supposed, deeply cut with the burin, but etched in so light and easy a manner, that their masterly freedom admirably harmonizes with the velvet-like softness of the mezzotinto.

Clearness not always easy of attainment.

Earlom's method clear and harmonious.

Note (FF.)

As mezzotinto is better calculated than any other style to imitate the gradual blending of colour produced in Painting with a brush, this advantage must be increased if a diversity of colours be superadded; and thus, the highest aim of the Engraver, namely, a perfect imitation of Paintings by renowned Artists, be obtained. This additional property causes the preference which is awarded to Le Blon's method. The methods of Chalcography, by means of the burin, the dry point, the etching needle, or the mezzotinto scraper, hitherto described, are certainly capable of expressing in a considerable degree the beauties of a Picture. We admire, in many works so executed, a subject judiciously chosen, a composition cleverly arranged, an outline tastefully and correctly drawn, an effect of chiaroscuro beautifully given: but we miss the charm of varied colouring, which not unfrequently constitutes the chief excellence of a Picture,—an excellence which, in flower painting, or subjects of still life, is indispensable. Le Blon's system seems calculated for supplying this desideratum. It multiplies the original Painting in every particular.

Method of Le Blon.

Attempts were made at coloured impressions of Engraving by *Peter Lastmann*, the sometime instructor of Rembrandt, even as early as the year 1626; by *Peter Schenck*, an Engraver of Amsterdam, in 1680; and by an English engineer, named Taylor, in the service of Frederic the Great: but, as these performances were merely etched in lines, and were executed by transferring the colour to only one and the same Plate, they could never attain the rich effect of a Picture. For this reason, no further endeavours of this kind seem to have been made. M. Bartsch, indeed, alludes to some mezzotintos, published some years since, that bear some resemblance to those of Le Blon. But as these were executed by means of only one Plate, previously painted over with the different

Previous attempts at printing in colours by means of only one Plate.

Notes on Engraving.

colours required, the dots or little crossings of the mezzotinto (see Note DD.) appear uniformly of one colour, (namely, that which the Printer has given to each portion of the Plate before printing,) instead of exhibiting that variety, richness, and transparent effect, which we proceed to describe in the method of Le Blon. Such Prints as the above do not blend their tints effectually, especially in the lights, where many traces of the white paper may be detected, and are seldom so perfect but that they require re-touching here and there with a brush; whereas Le Blon's impressions, on the other hand, are almost wholly covered with colour, and, if properly executed, come out in a perfect state from the hand of the pressman.

Three or more Plates required for Le Blon's method.

For every Picture to be imitated in Le Blon's style, at least three Plates are requisite,—one for red, another for blue, and the third for yellow. In some cases, a fourth Plate is also wanted for black. The mixture of these three primitive colours produces other three; red and yellow make orange; red and blue make violet or purple; blue and yellow make green. The mixture, moreover, of the three primitives—red, blue, and yellow—together in *equal proportions*, produces black; and their mixture, in *different* proportions, produces every other possible colour. (See PAINTING, Note to Art. 285.) The degree of strength or of paleness (*Ib.* Art. 284) in the tone of the primitive colours, or for that of the compounds produced by them, will depend upon the graining of the Plate, and whether it be deep or shallow. In places, for example, where the graining is left quite rough, and, consequently, where the colour sinks in deeply, a darker and stronger tone is produced in the impression. Where, on the contrary, the Plate has become smoother by the application of the scraper, and the colour but superficially imbibed, paler, lighter, and softer tones will be obtained. It naturally follows that each of the three Plates in question must be differently worked by the Engraver. For instance, the Plate intended for blue must be left quite rough in those places which are to appear perfectly blue; or, secondly, the Plate must be more or less scraped in parts where the blue is to blend with the colour of another Plate; or, thirdly, the Plate must be polished to a degree of perfect smoothness where the blue is not to appear. The same rule is to be strictly followed for each of the other Plates.

The colours used for printing must, says M. Bartsch, be transparent, so that one may show through the other. They may be ground with nut oil, but poppy oil is preferable. Both kinds should be mixed with one-tenth of drying oil. Prussian blue, yellow ochre, and red lake, (the latter mixed with two parts of carmine,) are the colours employed If a black Plate is necessary, printing ink is used. The blue Plate is used first, the yellow next, and, lastly, the red. The impressions may either all be coloured blue, then yellow, and afterwards red; or each sheet may be separately printed off at once. The latter method is preferable, as the colours then succeed each other in a damp state, and are more readily blended.

Note (GG.)

Chalk-Engraving or Dotted Etchings.

The preparation of the Plate, by laying the ground, tracing the subject, &c., is the same here as for etching. (Note BB.) This style may be considered a method of etching in dots, instead of lines. The dots are intended to resemble the grain produced by a chalk crayon upon paper. For the strokes made with the chalk will be found to touch the paper only at certain intervals, and on certain eminences, more or less apart, according to the description of paper used. According, therefore, to the quality of these strokes in the drawing to be engraved from, the size and distance of the dots or points made through the etching ground must be determined. In representing the hatches of the drawing, and in giving to each object its proportion of light and shadow, a distinction also must be preserved between those hatches which mark the perspective of the object, and those which characterize its surface. The principal hatches require, of course, to be more strongly marked than those which are subordinate; and the fainter or middle tints, if etched, must be marked lightly. But these latter may be left to be finished with the dry point or graver after the etching ground is taken off; and by this method greater softness and clearness will be obtained. Great care must be taken not to corrode the lighter hatchings too deeply. When these are sufficiently bitten they may be stopped out with the *stopping mixture*, (turpentine varnish and lamp-black, Note BB.) and the solution of aquafortis again applied, to *bite in* or corrode the stronger parts. At this stage of the process, if the dots which compose the shading burst into each other, the operator need not fear that they will injure the work, unless they form too hard a spot, or too deep a black. When the etching ground is removed from the Plate, it will be necessary to interstipple the flesh, or softer parts of the work, with points made on the pure copper by means of the burin or dry needle. The strongest shade will also require additional strength, and must, therefore, be deepened by slight touches of the graver. For making dots with this latter instrument, (Note BB.) a common practice is to change its situation in the handle, so that the belly or convex part of it, which was lowermost for cutting lines, becomes uppermost for dotting. Then, by having turned the handle to fit the hollow of the hand as before, the point of the burin acts upon the copper from a greater elevation, or, as mechanists term it, with a better purchase. As dots only, and not strokes, are required, the tool is managed in this position with greater ease and freedom. In this manner the Plate is to be worked and dotted throughout, and, when one covering of dots is completed, and cleaned off with the scraper, another covering must be inserted, until, by this operation, (repeated as often as is necessary for a perfect imitation of the drawing,) a proper grain and sufficient masses of shade are produced.

Finished with the graver and dry point.

Chalk-Engraving or Dotted Etchings.

Great patience and much practice are necessary to success in this way Many expedients and contrivances to save this trouble have been in use. For large subjects, and also where only a general effect is wanted, and where great exactness is not required, various other instruments have been used, such as wheels, having single or double rows of teeth at their edges, or cradles resembling a grounding tool for mezzotinto, (Note DD.) only made with peculiar teeth, so as to produce points or dots. Numerous tools were invented by the chalk Engravers in France, where chalk Engraving originated. A complete set of them is said to amount nearly to forty different articles. Of these, however, M. Bartsch mentions only the following; 1. an *etching needle*, in order to dot the outlines and parts intended for etching; 2. a *double needle*, or one with two points; 3. a *triple needle*, with which three dots may be made at once,—this instrument, together with Nos. 1 and 2, may be made with points differing in thickness, according to the size of the dots required: the points must be rather blunted; 4. the *mattoir*, a sort of punch, (Note CC.) one end of which, in a cubical form, is furnished with small uneven teeth, irregularly placed and blunted: it is fastened to a wooden handle; 5. a similar *mattoir*, *without a handle*, to be hammered upon the Plate after it has been etched, and the etching ground cleaned away; 6. the *roulette*, a small roller or cylinder of steel, (between one-eighth and three-sixteenths of an inch in diameter,) which is covered with small, closely compacted, delicate points or teeth, and which revolves upon an axis attached to a handle of wood: this instrument also varies in its breadth and thickness, and in the fineness as well as closeness of its teeth; 7. a *double burin*, with which two dots or pecks may be made at one time.

Variety of tools used by French artists.

It will sometimes happen, in etching the work, that parts intended to be dark will fail of their proposed effect, and the failure be unperceived until the etching ground has been removed. In such cases, the process of re-biting (Note BB.) may be advantageously practised.

Number of Impressions.

Plates, engraved in this style, commonly yield about five hundred or six hundred impressions. Common printing ink is used for black, and burnt sienna for red: this latter, as also the various mineral colours employed for imitation of chalk drawings, should be ground in poppy oil. Drawings, made with chalks of different colours, may be imitated, if a separate Plate be provided for each colour. There are several excellent French imitations of chalk drawing on blue paper, by using two Plates, one to print the black chalk effect, the other to give that of the white chalk.

Note (HH.)

Difference between the English and French style.

This method only differs from the last in the superior neatness of its execution. The English style, says M. Bartsch, is distinguished from the French by having its dots small, round, and closely placed together like those executed with a punch, (Note CC.) but much more distinct. In the French Engravings, the dots are irregular, rough, sharp, either coarse and too far apart, or they take the opposite extreme, running into each other from being too close.

Plates, engraved in the English manner, furnish nearly five hundred good, and the same number of weaker, impressions. They are hot-pressed, and receive the same colours similarly prepared with those for the last-mentioned method.

Note (II.)

Method of Le Prince wholly etched.

The bistre, or aquatinta style, called Le Prince's method, is wholly etched. The outlines are first etched in the manner before described. (Note BB.) After this operation, the Plate is thoroughly cleansed, and again washed slightly with common etching varnish. When the varnish is dry, those portions of it, where the shading in aquatinta is intended, are to be cleanly removed from the Plate by the application of a sharp fluid, composed of olive oil and spirit of turpentine, mixed with lamp-black or finely powdered pine-tree soot. This fluid, which is laid on with a brush over the shaded parts, and which is mixed with the black in order to make

Notes on Engraving.

the confines of shadow more visible and more distinctly executed, so completely removes the varnish, that it may be immediately wiped off with a clean linen rag. The whole Plate is next covered with finely powdered white resin, sifted all over it through a fine hair sieve. In order that the powder may not be adhesive, it should be previously wetted with a mixture, composed of soap, sugar, and water. The superfluous resin is then shaken off, and the Plate held over a charcoal fire until the small particles of resinous dust dissolve and adhere to the bare copper. This change is observable as soon as the dust, which was previously white on the places covered with varnish, begins to turn brown, and also when the outlines previously concealed by the dust begin to be visible. As this change takes place, the Plate must be removed from the fire, and allowed to cool; otherwise the little grains, instead of merely adhering to the copper in a granular form, would spread and liquidate into a sort of varnish, and impede the progress of the aquafortis, for which the Plate is now ready. The solution should not be very strong, else the innumerable small grains would be detached from the copper, and the work be spoiled. The first tone of shading being completed, the Plate is cleaned, washed over again with varnish as before, and the second tone worked into it. This process is to be repeated until all the requisite tints are produced. The artist may, according to his fancy, either begin with the strongest shades, adding the weaker ones by degrees, or may first *etch in* the more delicate tints, and afterwards go over them until he obtains the darker shadows. The first of these modes is generally preferred.

How to lay the aquatint ground.

Biting in.

Other ways of laying the ground.

Some variation in the manner and routine of these operations is occasionally practised. The powdered resin, for very fine work, may be enclosed in a bag of fine muslin, and shaken against a piece of stick at a considerable height above the Plate, in order that a large cloud of the resin dust may be formed, which, in descending, may spread uniformly over the surface previously to heating the Plate: and the heating may be more gently and gradually effected by holding under it some lighted pieces of brown paper, and moving them about till every part of the powder shows itself sufficiently melted by changing colour. After the Plate is cool, such parts of the work as are to come out perfectly white are covered or stopped out with the stopping mixture, (Note BB.) diluted sufficiently with turpentine, so as to work freely in the hair pencil. The margin of the Plate must also be stopped out. Then follows the process of *biting in*, which is repeated according to the number of tints required.

Stopping out.

There is extreme difficulty, however, in some cases, of stopping out, round the finishing touches, leaves of trees, and light sharp projecting edges of other objects, by only the mode just stated. Another very ingenious process has been contrived to overcome this difficulty, so as that the finishing touches of the drawing may be perfectly imitated and copied on the Plate with the same ease and expedition as they were laid on at first in the drawing itself. Fine washed whiting is mixed with a little treacle or sugar, and diluted with water in the pencil so as to work freely; and this is laid on the Plate when covered with the aquatint ground, in the same manner and on the same parts as ink in the drawing. When this is dry, the whole Plate is varnished over with a weak and thin varnish of turpentine, asphaltum, or mastich, and then suffered to dry: when the aquafortis is poured on as in etching, (Note BB.) the varnish, by the action of the corrosive fluid, will immediately break up in the parts where the treacle mixture was laid, and expose all those places to the action of the acid, while the rest of the Plate remains secure.

There are disadvantages, it must be owned, which attend this mode of engraving aquatinta, and cause it to be only occasionally practised. Plates, thus engraved, do not print many impressions before they are worn out; and as different degrees of coarseness or fineness in the grain are frequently required for producing a complete effect, the process hitherto stated is often insufficient. A second method, therefore, of producing the aquatint ground is very generally resorted to. Some resinous substance, as common resin, Burgundy pitch, or gum mastich, is dissolved in spirits of wine, and this solution poured all over the Plate, which is then held in a slanting direction until the superfluous fluid drains off. The Plate is next laid down to dry, which it does in a few minutes; and if the surface be examined through a magnifier, the observer will find that the spirit, in evaporating, has left the resin in a granulated state, or rather that the latter has cracked in every direction, still adhering firmly to the copper. The spirit of wine used for the solution must be highly rectified, and of the best quality. Resin, Burgundy pitch, and gum mastich, when dissolved in spirits of wine, produce grains varying in appearance and figure, and are sometimes used separately, and sometimes mixed in different proportions, according to the taste of the operator. In order to produce a coarser or finer grain, it is necessary to use a greater or smaller quantity of resin; to ascertain the proper proportions, several spare pieces of copper are provided, on which the liquid may be poured, and the grain examined before it is applied to the Plate for engraving. The liquid, after the solution is made, must stand undisturbed for a day or two, until all the impurities of the resin have settled at the bottom. Straining it through linen or muslin will not answer, as, in straining, it becomes filled with hairs or other obnoxious matter, which ruins the grain. The room also in which the liquid is poured on the Plate must be perfectly still and free from dust, which, wherever it falls on the surface (if moist) of the Plate, causes a white spot, which it is impossible to remove without laying the grain afresh. The Plate must likewise have been previously cleaned with the greatest possible care by the application of a rag and whiting, as the smallest particle of grease will produce some streak or blemish. In slanting the Plate, to draw off the superfluous fluid, there will naturally be a greater body of the liquid towards the lower than at the higher edge of the Plate. The grain, therefore, is always coarser at the side of the Plate which is held lowermost. The coarser side is usually kept for the fore-ground, as being that portion of a drawing which has generally the deepest shadows. In large landscapes, sometimes, various parts are laid with different grains, according to the nature of the subject. Moderately coarse grains better answer the purposes of this art than very fine ones, since the particles, when very small and near each other, are liable to be soon disturbed by the aquafortis, which of course corrodes laterally as well as downwards. Indeed, in any case, the acid, if left too long on the Plate, will eat away the grain entirely. Let the artist have several bits of copper laid with aquatint grounds, the same in kind and in grain as those to be used, and let the aquafortis remain for different lengths of time on each. He may then examine and judge of the tints produced, in one, two, three, four minutes, or longer; and may vary the strength of the solution according to circumstances. A magnifier is useful to examine the grain, and to observe the depth to which it is bitten in. No proof of the Plate can be obtained till the whole process is finished. In re-biting, or etching over again any part already subjected to the aquafortis, the new grain to be laid on should be coarser than the first, otherwise it will be apt to lodge only in the dots or holes previously etched, and not upon the heights only, as is necessary in order to produce the same grain.

Aquatinta.

To determine how long to leave the acid on the copper.

New grain for re-biting coarser than the first.

This style of engraving is, as we observed, chiefly adapted for imitation of sketches, washed drawings, and light subjects; but is not at all calculated to produce Prints from highly finished Pictures. Its resemblance to drawings, however, only extends to the imitation of abrupt shadows boldly executed: it does not succeed in those which are softly shaded off as they approach the lights. The Plates seldom give more than two hundred good impressions. They must be hot-pressed and treated with care.

Deficiency in aquatinta.

The Treatise by *Stapart*, published in 1773, (referred to in the first note to Art. 66.) and entitled "The Art of Engraving with a Brush on Copper," gives the following account of his process: "After etching his outline he covers his Plate with a transparent varnish, through which the etched outlines are to be distinctly visible. The varnish, while yet in a fluid warm state, is then strewed with rock-salt, sifted over it through a fine hair sieve. The Plate is next held over a charcoal fire, till all the grains of salt penetrate to the copper through the varnish. The Plate is now cooled and dipped in water to dissolve the salt. An infinite number of small holes will be perceivable through a magnifying glass; and through these holes the solution of aquafortis is to find its way for corroding the Plate as in etching. The lights, however, must be first stopped out by another substance, which the writer terms the colophon varnish, (such as is used for lackering,) mixed with a little pine-tree soot. When the weakest shadings have been bit in sufficiently, the aquafortis is poured off, the Plate dried, and the first or weakest tone of shading stopped out preparatory to a second application of the corrosive liquid. This operation of alternately stopping out and etching is then repeated, till all the proper gradations of shadow are completed."

Extract from Stapart's "Art of Engraving with a Brush on Copper." A. D. 1773.

A better method of laying the ground.

The true discoverer, says M. Bartsch, of the above method described by Stapart, appears to have been *Peter Floding*, by whom two Plates after Monet and De la Rue, published in 1762, are etched, as M. B. conceives, with seasalt or rocksalt, and who styles himself *Novi hujus primarum delineationum conservandarum, et multiplicandarum methodi auctorem.*

By some artists, a mixture of seasalt and rocksalt, with sal-ammoniac and syrup of old honey, has been used. This mordant, being applied with a brush, either to the clean copper or to the varnished surface after perforation by the salt, produces gradations of shadow delicately rounded off, as may be observed in the clouds of some of the Plates of *Ploos van Amstel*. This composition has been likewise used after the first two tints were produced by the

Notes on Engraving

solution of aquafortis, in order to add the third darkest tint. To make the latter still darker, some have used a solution of silver in spirit of saltpetre or of copper; or, thirdly, aqua regia, any of which substances may be applied with a brush. But the process called Le Prince's method has been preferred to every other.

Note (KK.)

For this style of the Art, as well as for that of Le Blon, (Note FF.) as many Plates are required as there are colours to be used. These are generally black, blue, yellow, and red; and from these may be derived the other compounds. Etching is here only employed to define the outlines of the figures. When this is done, and the Plate cleaned, it is worked upon with rollers, (roulettes,) which, as respects the graining only, differ from those used in chalk Engraving. (Note GG.) by being altogether finer, in consequence of the difference in the teeth of the instrument. Some Engravers use another instrument resembling a common thick etching needle, but having, instead of the point, a little wheel with spikes affixed to it. This tool is used with both hands: the right hand keeps it in a perpendicular position, while the middle finger of the left hand turns the wheel. The tools are worked on the metal in a dry, that is, unvarnished state.

For Aquarilla the outline only is etched.

Instruments for this style, and their uses.

As the rollers employed for this work may be pressed much or little, according to fancy, their operation possesses an advantage over the last-mentioned or aquatinta style. Not only the abrupt tones of shade, as in aquatinta, (Note II.) but also the soft gradations of light may be produced, and, consequently, a perfect imitation of finished drawings. The softer shadings appear as delicate in the impression as if they were washed in with Indian ink. They much resemble those of aquatinta, only traces here and there may be detected of little furrows, almost like those we meet with in a finely grounded mezzotinto. In the dark shadings, the dots of the coarser grained roller are distinctly perceivable. But the distinguishing characteristic of this style appears in those shadows, as before observed, which vanish and disappear by insensible gradation into the lights, and which cannot be represented on metal Plates by any of the other methods in imitation of water colours. When the drawing to be engraved is of but one colour, a single Plate will suffice, but four or five Plates may be requisite for coloured drawings. Plates executed in this manner furnish about two hundred good impressions.

Its advantages

Number of impressions.

Note (LL.)

Nearly all kinds of stone imbibe both watery and oily fluids; but the portion of a stone occupied by one of them of course precludes the admission of the other: consequently, where a slab on any part of its surface has been greased, it ceases to soak up water, and *vice versâ*. Upon a stone partially greased, and having its remainder saturated with water, a greasy application can only take effect where grease has been before: let, therefore, an oily substance, such as printer's ink, be rubbed over a stone so prepared, the applied substance will adhere only in those places to which it bears an affinity; and whatever lines or forms may have been originally traced with the greasy material will become more distinct and prominent, and may be charged with a sufficient quantity of colour, to be again taken off the surface by means of pressure, and transmitted to paper. On these few and simple principles is founded the art of printing from stone, or lithography.

Principles of Lithography.

Preparation and quality of the stone.—The stone should possess a perfectly level surface, with a fine uniform grain, and should readily imbibe moisture. The best sort is a species of limestone, or calcareous slate, generally cut into square slabs, smoothed on the upper side, and employed in Germany for floors of churches, cloisters, courts of palaces, as well as private houses, &c. It is known in Germany by the name of Kehlheim stone, having been brought from quarries near a town of that name on the Danube. It abounds in the district between Dietfurt and Pappenheim, and along the Danube down to Kehlheim. The quarries at Kehlheim, it is said, are exhausted, and the traffic in lithographic stone now chiefly centres in the village of Solenhofen, in the district of Monheim, three leagues from the town of Neuburg, on the Danube. When the ground is uncovered to the depth of from ten to fifteen feet, the stone appears in horizontal strata, of various thicknesses and qualities. The stone Plate requires to be from two to three inches in thickness. It is composed of carbonate of lime, in which a small portion of iron is present, and the best is generally to be found in the vicinity of iron mines. Oxide of iron appears to bear a strong affinity to grease, since the best impressions have been obtained from stones whose yellow colour indicates the presence of iron. A solution of iron has been consequently used by French lithographers for washing the stone, called by them, *la preparation qui fait jaune*, and by us "yellow facing;" but it causes too strong an affinity to the grease, clogs the Plate with colour, and produces what are termed *smudged* Prints. In colour and texture, Bath stone more nearly resembles that of Solenhofen than any other to be found in England. But it is inapplicable for any but the coarsest work. An extensive search was made between A. D. 1817 and 1819 by M. Engelmann and the Lithographic Society, throughout the Vôlges and Jura, in the hope of discovering quarries; but, though these mountains, and the Jura in particular, are principally calcareous, and might furnish great abundance of the kind of stone, yet it was found so unequal in formation and colour, and so interrupted by fissures, crystallizations, petrifactions, and other blemishes, as to furnish no Plates of sufficient dimensions to recompense the labour of extracting it. The same objections apply equally to the lithographic stone of Swisserland, France, Italy, and the British isles. The Lithographers of Europe depend for their supply upon Bavaria alone, where, however, no want of the material for centuries to come need be anticipated.

Stone from Kehlheim and Solenhofen.

Lithography

Other countries yield Lithographic stone, but not in Plates of proper size.

From the difficulty and trouble attending the safe and ready conveyance of stone Plates, other contrivances more portable and available have been attempted. The ingenious Senefelder has invented various substitutes and compositions in imitation of the stone, some of which have been employed in Germany; but, although useful as temporary expedients, they yet call for much improvement, and are still inferior in point of consistency and manageableness to those from the laboratory of Nature at Solenhofen.

Substitutes for stone attempted.

For preparing the surface of the stone tablet, M. Bartsch, to whom we are indebted for most of our technical details, gives the following directions: Two slabs with their flat surfaces laid together, and having some clean silver sand and water between them, are rubbed backwards and forwards, until the sand is crushed, and, by wearing away the stone, becomes a thick paste-like substance; more sand must then be added, or the old quite washed off, and fresh sand and water applied. The rubbing must be continued till both surfaces are perfectly level. Two stone Plates are thus polished at the same time. The polisher, according to the sort of work to be finally printed from the stone, makes the surface more or less rough, and to produce a finer grain, strews fresh sand, continuing to rub the stones till the larger particles of the sand become rounded, but not quite crushed. When perfect smoothness and glossiness are required, the foregoing operation is persevered in, and ceases only when the sand meets no longer with any resistance from the stone surface, which is then rubbed with pumice and water till it shines and reflects the light. Upon the accuracy of this work of the polisher, the future success of the Lithographer in a great degree depends. No inequalities must remain on the surface, otherwise no clear impression can be taken, or the stone may be fractured in the press. The smoothed face of the stones after graining or polishing should be carefully washed with a sponge in pure water, to remove the grit, and then left to dry.

Preparation of the stone for Plate.

Materials for drawing on the stone.—The materials for inscribing the stone are, either a preparation of chalk, to be laid on in a dry state like a crayon on paper, or a kind of ink to be used with a pen or hair pencil as in writing or drawing. Among the various receipts given by Senefelder for Lithographic chalk, he considers the best to consist of eight parts wax, four of soap, and two of lamp-black. These ingredients, after sufficient concoction, should be poured slowly upon a marble slab or iron plate, to form a mass about as deep as the thickness of the intended crayon. This substance is next pressed under another Plate, to render it sufficiently hard and compact; and then, while it is yet warm, divided into strips, which are afterwards separated when perfectly cold. The lithographic chalk may be made harder by a greater proportion of wax, or softer by increasing the proportion of soap. Very good crayons, of a medium stiffness, may be made of four ounces of wax, four of chalk, four of soap, and two of lamp-black.

Lithographic chalk.

The composition for Lithographic ink is composed, according to M. Bartsch, of two parts or ounces of common soap, five parts or ounces of pure white wax, one-fourth part or one quarter of an ounce of grease, and one part or ounce of lamp-black; the latter ingredient to be greater or less, according to the fancy of the designer. Another recipe in frequent use has somewhat different proportions. Take of white bees' wax half a pound; of common yellow soap two ounces and a half; and of lamp-black one ounce. These substances, with the exception of the lamp-black, are then mixed and made to burn over the fire in an iron vessel; that is, suffered to remain till ignition has taken place, and at least one-third of the wax and soap has been consumed. The lamp-black is then added, and the whole well stirred. The mixture must be poured out slowly on an iron or stone plate, and left to cool. When wanted for use, a portion of it is to be mixed with water in the same manner as Indian ink, and made of sufficient consistency to

Lithographic ink.

Notes on Engraving.

run freely from the pen, but should always be somewhat thicker than common ink.

Instruments for Lithography.

Lithographic instruments.—These are a port-crayon, a swan quill, an etching needle, a scraper, (such as for mezzotinto, Note DD) a steel pen, a slab and muller, a pallet knife, camel's hair pencils, and dabbers. The latter are made of silk or soft glove leather (white kid leather is preferable) stuffed with cotton. The dabber is fixed to a handle about sixteen inches long, and is used like a hammer, that each stroke may bring the smooth leather surface in contact with the stone.

The stone plate must be kept clean during the work.

Precautions in drawing.—The Lithographer, while his drawing is in progress, must above all things be careful that nothing either wet or greasy touches his work; grease of any kind will be sure to print, and moisture will prevent his chalk from working with precision and clearness. Dampness even from breathing should be prevented, for which purpose a kind of fan made of paper may be placed before the mouth and nostrils to turn the breath in a different direction; or the stone, as M. Engelmann advises, may be moderately heated before it is drawn upon. The stone likewise must be kept quite pure from dust, and cleansed throughout with a perfectly clean dry camel's hair brush, otherwise the pellicules of dust entering the cavities in the grain of the plate will intercept the touches of the crayon. Any substance also of the nature of gum or glue must manifestly have the same injurious effect. The fingers must never touch the work. It is useful for the Draughtsman to support his wrist upon a bridge or rest about four or five inches wide, made to rise, at its lower surface, about one-eighth of an inch clear of the stone; and a margin of at least an inch wide must be left round the work for the necessary space required to lift or move the stone. The brush of camel's hair must also be repeatedly applied to sweep away the smallest particles which must unavoidably escape from the hair of the Designer while leaning over his work. Neither India rubber, nor crumbs of bread, must be used for effacing any errors which may be made by the lead pencil in sketching his outline; clean white leather may be employed; but these errors, unless the grain of the stone is injured by them, and unless they have been repeated by the afterwork of the crayon, or lithographic ink, are quite harmless, and will not come out in the impression. The face of the stone, when not in use, should be lightly covered with clean paper.

Practice of Lithographic Drawing.

Three modes of working.

The methods of working on the stone have been sometimes classed under two heads, according to the material used, namely, either the *crayon* above described, or the lithographic *ink*. In the use of the latter material, however, a third division of the Art should be added, called *Dabbing*. These three methods may be either practised singly or conjointly, according to the effect intended.

1. Lithographic crayon.

1. *Crayon drawing.*—The Lithographic chalk should be kept dry and excluded from the air. If the subject is to be previously traced on the stone, French tracing paper should be used, not such as has been prepared with oil or varnish. The tracing, being completed carefully on the paper with a soft black-lead pencil, is next laid with the penciling downwards on the stone surface, and fastened at its edges with strong gum-water or a few wafers, to prevent slipping. A sheet of soft paper is then placed above, and rubbed with a smooth piece of ivory or ebony. In this manner the lines of the pencil are transferred to the grained surface. Or the transfer may be accomplished by placing, as in Chalcography, (Note AA) between the tracing paper and the Plate, a piece of white paper rubbed all over with the lead, (the rubbed side being laid downwards next the stone,) and then by going over the traced lines with a blunted steel point or etching needle. Tracing is recommended in preference to sketching on the stone with the black-lead pencil, as too much care cannot be taken to preserve and protect the grain of the stone. This grain for chalk drawing should be coarse rather than fine; particularly for portraits, otherwise the stippling of flesh will have a heavy and hard effect. A surface moderately grained is the best for the Lithographic crayon. Should the stone not be free from veins, care must be taken that the more delicate parts of the drawing do not come where the lines or spots appear. For delicate touches, the crayon should have a long and slender point, and should be used in a swan quill, which, by its lightness and elasticity, assists the hand in the operation. For strong touches, a firmer and shorter point is necessary, and the chalk should be placed in a port-crayon, which enables the hand to give firmness and precision of touch in the darker masses of the work. As the Lithographic crayon is apt to soften by much friction, a steady and rather slow motion of the hand is requisite to prevent specks and unevennesses in the work. These specks will cause infinite trouble to a hasty Draughtsman, as they must afterwards be carefully picked away with the etching needle, and swept from the surface with the brush.

Tracings and Transfers.

Method of working in chalk.

A finely-pointed crayon passed repeatedly backwards and forwards with a uniform steady motion, but not with heavy pressure, produces very fine dark lines. Soft chalk produces the greater depth of colour, but for more delicate parts, such as flesh, &c. a firmer kind of crayon is required. Dark masses are not to be obtained by heavy pressure, but by repeated hatching and stippling. Strong touches sufficiently broad to admit of a bluntish or firm point are procured by driving the chalk firmly against the grain of the stone. Any required depth of tone may be produced in this way. Sharp catching lights may be scraped out with the mezzotinto scraper, or fine light lines may be scratched with the etching needle. These latter operations must be performed with the utmost care and precision, since the scraped parts of the surface become too rough to take the chalk a second time, or too uneven to print with certainty. Some Lithographers soften their tints into each other by means of a mezzotinto cradle or grounding tool, (Note DD.) but this practice is unnecessary if the drawing be carefully executed; and the work will print much better without it. Lithography

The Artist will not fail to observe that the colour of the stone being darker than common drawing paper, his drawing will have a more finished appearance on the stone than when printed. He must therefore calculate accordingly, and not consider the colour of the stone as giving him any assistance by way of a middle tint, but must lay a proportionate tint over the lighter parts of his work.

2. Method of working in lithographic ink with a pen or brush.

2. *Ink drawing.*—The surface of the stone for ink drawings should have a delicate polish, which has been produced by finely powdered pumice-stone used after the fine sand. The process of tracing is similar to that for crayons above given, but is usually made with common red chalk. The ink is then made ready by rubbing the stick (like a cake of Indian ink) in a little warm or cold water; rain water, or distilled water, is the best. The ink for the pen should be less diluted than for the camel's hair pencil. The pens should have nibs of different breadths, according to the sort of lines to be drawn; and the hair pencils should be of the same kind, and in the same variety, as those used by Painters in miniature. Ink drawing requires more study and practice than crayon drawing. In laying on the colour with the brush, care must be taken that the greasy or soapy particles are spread uniformly, since on this, and not on the evenness of colour merely, depends the success of the future impression. A wash of the mere colour may have its proper tone, and look admirably well on the stone, and yet be utterly useless for printing: or the wash may be quite colourless; yet if a sufficiency of the greasy material be evenly imbibed, the impression will come out perfect. M. Engelmann recommends the practice of stippling, hatching, or dotting, whenever the pen or hair pencil are used. A union of pen-work with that of the hair pencil produces very agreeable effects; touches sometimes of the crayon may be added. Ink lines may also be put into a chalk drawing. The work of the hair pencil is less difficult than that of the pen; producing touches of greater delicacy and softness, and fewer blots. The progress, however, with the pencil is slower, the touches are sometimes not sufficiently charged with ink, and there is, on the whole, less freedom of execution. Architectural designs, or such as require great nicety, are sometimes outlined in ink, and finished in the crayon manner. The architectural Draughtsman will find his drawing pen of occasional use, but must be careful frequently to clear the point, and prevent it from being clogged with ink.

If ink drawing, however, requires more time and pains than the work of the crayon, the operator will be rewarded with a greater number of impressions. M. Engelmann remarks, that ink designs well executed on stone are almost inexhaustible; and that thirty thousand or forty thousand impressions from them have been taken without any perceivable difference between the first proofs and the last.

Mr. Nethercleft's method of transfer.

The following method, invented by Mr. Joseph Nethercleft, for transferring designs (drawn first on paper in lithographic ink) to the surface of the stone, was rewarded, in 1829, by a premium from the Society of Arts. The paper for the design receives first a wash of common size laid on with a camel's hair brush, and afterwards three coats of paste laid on in a similar manner carefully and evenly. The paste is made by boiling in separate vessels a quarter of a pound of tapioca, and the same quantity of arrow root, till each forms a paste. Let them then be united and mixed with a sufficiency of hot water to make a thin paste to be strained through a piece of muslin. Then add a quarter of a pound of flake white, previously well ground in water, and stir it in with the paste. The paper, when dry, should be either cold-pressed, or sent to the glazing-mill and flatted between two rollers. Two sheets, with their pasted sides contiguous, may be glazed together. The ink recommended by the inventor consists of equal quantities of yellow soap and shell lac boiled and burnt together, with sufficient lampblack to give it colour. In order to transfer the writing or drawing made with this ink with a steel or

Note on Engraving.

crow-quill pen on the prepared paper, let the stone be moderately warmed. Damp the back of the prepared paper till it lies perfectly flat, and be careful that no wet touches the prepared side containing the drawing or writing. Next lay the paper carefully on the warm stone with the wetted side upwards, and lay over it a sheet of soft paper, such as will absorb the wet. Pass the stone through the press three or four times with increased pressure, after which the paper will peel off, leaving the composition or paste, as well as the drawing, upon the stone. Wash off the paste, and lay a strong tint of gum arabic and water over the surface. When dry and cold the stone is ready for printing.

3. Use of the dabber.

3. *Dabbing.*—The stone for dabbing should be polished as for pen-work. After tracing the design upon it, according to the method above given for crayon drawing, the artist stops out his margin, and all the places where pure lights are to be left, with a mixture composed of gum-water, to which a little candied sugar powdered and a little gall have been added. This composition should be diluted sufficiently to work with tolerable freedom in the pencil, and the stoppings should be firm and decided. When the first stopping for the pure lights is completed and perfectly dry, he charges the dabbers with the Lithographic ink, dispersing it evenly over the surface. The first tint required is usually very light; the dabber therefore should be sparingly charged with colour, and tried by striking it on the surface of a spare piece of stone to ascertain what depth of colour it will give. If the tint be too light, it may be strengthened by repeated dabbing. Having obtained an even tint of this light kind over the surface of the plate, the Lithographer proceeds to stop out the light tints, taking care not to stop out more than is necessary. After this second stopping, he continues to ply his dabbers as before till he obtains the strength of the second tint; and in this manner alternately dabs and stops out until all the tints of his drawing, according to their due gradations, are completed. Minute markings and touches are obtained with difficulty by the dabbers alone: the chalk or pen therefore may be resorted to; and in cases where any stoppings have been omitted, the mezzotinto scraper or a sharp penknife may be used to lighten the tint in the faulty parts. Sometimes a mezzotinto grounding tool is useful to soften the tints after the process of dabbing. The reader will have probably observed that this process, called the "dabbing system," is admirably adapted for white ornaments on black or dark grounds.

Lithographic Printing.

Printing.

We now come, lastly, to another series of operations which require perhaps more care than any of the foregoing. For printing from stone, a Press of a peculiar construction is required. A description of the Lithographic Press is attempted by M. Castellan in his Report to the Academy of Fine Arts at Paris, in 1816, who at the same time details the process of Printing as follows: *Le mécanisme de la presse d'ffère de toutes celles qu'emploient les imprimeurs en caractères, en taille douce, les dominotiers, et les imprimeurs d'étoffes. Cette presse consiste en une table creuse terminée à l'une de ses extrémités par des montans qui supportent un rouleau à moulinet; la table est recouverte d'un châssis garni d'un cuir fortement tendu. On place la pierre dans le creux de la table et on l'y assujetit au moyen de calles et de coins, puis on la mouille avec une éponge et de l'eau pure, jusqu'à ce qu'elle en soit bien saturée. Ensuite on charge la planche de noir au moyen d'un rouleau de bois ou manchon recouvert d'un cuir, et qui est lui-même imprégné d'un noir d'impression extrêmement fin et compacte qu'il a pris en roulant sur un marbre chargé de cette matière; on promène ce rouleau plusieurs fois, et en tous sens, sur la pierre. La pierre étant donc chargée de noir, on étend dessus un papier d'impression, bien moins humide que celui qu'on emploie pour celle de la taille douce; alors le châssis retombe sur la table, et par dessus ce châssis une racle ou règle en bois qui, au moyen d'une bascule faisant agir deux leviers, exerce une pression de plus d'un millier de livres: enfin on met le moulinet en mouvement; la sangle attachée par son autre extrémité, à la partie mobile de la table dans laquelle la pierre est placée, s'enroule sur le rouleau, et fait glisser sous cette règle la superficie du châssis, qui sert d'intermédiaire entre elle et la pierre, et l'épreuve est imprimée. On relève alors la règle, on ouvre le châssis et on retire cette première épreuve, pour en faire sur-le-champ une seconde de la même manière, et sans déranger la pierre qu'on mouille à chaque fois. Pour conserver les planches lorsque le tirage est fait on les enduit d'une couche de gomme arabique, qui les met à l'abri de l'atteinte des matières grasses et du frottement qui pourraient gâter le dessin.* We despair of giving a better description of the Lithographic Press and its uses. To such of our readers as have never seen one, we recommend a visit to the establishments of some of our Lithographic Printers. That of M. Hullmandel is, as we before said, one of the earliest in London, and has met with deserved encouragement and success. The machinery of the Lithographic Press has undergone several improvements since the account above quoted as given by M. Castellan. The improved Press of Messrs. Taylor and Martineau, of London, is one of the simplest in construction, and most convenient for use. Two cast-iron uprights (see pl. i. fig. 11) form the sides of the Press, and are firmly attached to the base and table beneath. A carriage below containing the stone is supported by small rollers which considerably diminish the friction, and which move along a railway at the bottom of the table. The carriage is put in motion by means of a cylinder, to which a strong handle is attached; and the scraper (called in the above description by the French term racle) is depressed towards the stone by means of a spiral placed at the extremity of a handle for the purpose. A regulating screw is added for adjusting the Press to the various stones employed in the several branches of the art.

Report of M. Castellan on this subject.

Lithography.

Improved press by Messrs. Taylor and Martineau.

Before the Pressman submits the stone to the Press he must perform two very essential operations: first, he washes the stone with aquafortis well diluted in water. This solution prepares the stone to receive more readily the aqueous particles in the parts not intended for impression, and cleanses the surface likewise from dirt. A very weak solution, and such as will not excite effervescence, is required. When the whole surface has been wetted, fresh water is immediately used for rinsing it; and, when a sufficiency of water has been imbibed, a thin coat of gum arabic and water must be passed over it.

Process of printing.

Secondly, the Pressman proceeds to the operation of charging the stone with printing ink, and applies his colour with a stuffed leather ball, pressed or dabbed perpendicularly on the surface, or with the common inking roller. For fac-simile of MSS. the roller is preferable. The printing ink must be applied carefully, and not too thick; otherwise, the lines will print broader than in the design, and be apt to spread over the stone by the pressure given in printing. The first impressions are generally feeble, and the operator must not expect a satisfactory result all at once, but must patiently repeat the process till a good impression is produced. The Plate, between each new application of the printing ink, must be thoroughly saturated with water. When signs appear of the Plate being clogged or overcharged with colour, (an accident which arises from a portion of the printing ink being left on the Plate after taking an impression,) the Plate must be cleaned by means of the following mixture: one part linseed oil, (or two parts olive oil,) two parts oil of turpentine, and three parts of water, shaken strongly together in a phial till they produce a foam. A small portion of the liquid well shaken is poured upon the Plate, and spread rapidly with a sponge over the entire surface. By means of this process, the black lines or shadings dissolve and become entirely obliterated: the oil of turpentine removes all greasy superfluities, while the linseed oil of the mixture supplies fresh nourishment to the drawing, and the water or third ingredient of the composition is drawn only to the parts where water has already been absorbed. The face of the stone, being now perfectly cleansed with a large sponge and fresh water, becomes as white as before the drawing was made, and the work, being no longer discernible on its surface, presents to the eye of a novice the appearance of being utterly spoiled. It must be left in this state for a short time, and is then to receive a thin coat of gum-water previous to the renewed application of the Printer's ink. All the original lines and touches of the drawing then reappear, and seem sharper and more distinct than ever. If, after an impression, the printing ink still shows a tendency to remain on the stone, a little diluted nitric acid may be carefully applied with a sponge to remove it. The operator must be careful not to use the same sponge indiscriminately for these several liquids, but must keep a separate sponge for each.

Paper.

Paper.—The paper for Lithographic impressions should be considerably thicker than for ordinary printing. If thin paper be used, intermediate layers will be necessary, that the scraper in printing may not come too near the drawing itself. Unsized thin paper is on this account unserviceable; since the printing ink, if very tenacious, will make the paper adhere to the Plate. All papers, in whose composition chalk or alum is present, are, says M. Bartsch, injurious to the stone.

Printing ink

Printing ink.—M. Bartsch's recipe for printing ink is linseed oil well thickened by boiling, into which a sufficient quantity of lamp-black is afterwards well ground, till the whole mass is smooth and adhesive. Another recipe, which we copy from the *Encyclopæd. Edinensis*, recommends "one part grease or coarse soap; four parts white wax; one part gum lac; and one part lamp-black, bruised and very dry. In mixing these ingredients, the grease or soap is cut in small pieces, and put on a strong fire in an iron pot: this being well heated, the wax, also in small pieces, is introduced. After stirring it about, it is then set fire to with a match, and, while burning, the gum is added. When dissolved, extinguish the flame by covering up the pot; and, while the mixture is boiling, add

Notes on Engraving.

the lamp-black, still stirring it, till the whole is completely incorporated. It is then taken off the fire, and poured out on a plate of iron to cool. It becomes completely solid, and may be preserved in cakes. When wanted for use it will be cut into pieces, and dissolved in spirit of turpentine, or linseed oil, to a due consistency. It must not be ground very thin, as the lines will then be unequal and weak in their effect."

Temperature.—The temperature of the printing room is of much importance to the Lithographer. No season is so dangerous as hot weather, causing a rapid evaporation from the Plate which cannot be too moist. On the other hand, in very cold weather impressions are not to be obtained till the Plate has been a little warmed, and the chamber well heated.

Note (MM.)

Among these several varieties in the practice of Lithography, some may require no further explanation than is to be collected from the foregoing Note; such are Nos. 1, 2, 3, 8, and 11. The method No. 4, for which several Plates are employed, and which we should call compound Lithography, (Art. 12.) differs only from the processes which we noticed under Wood Engraving, (Art. 28. and 30. Note (P.) or under Chalcography (Art. 46. 63. and 67. Notes (FF. and KK.) by the peculiarities already stated, which distinguish Lithographic Engraving and Lithographic Printing in general from Engravings on wood or metal. M. Bartsch remarks, that during the process of preparing the stone Plate for the Press by ablution in diluted aquafortis, the delicate tints of a crayon drawing sometimes become enfeebled and sometimes quite disappear; and recommends the use of a second stone Plate, on the surface of which the highest lights are left untouched, and the middle tints restored by some colour, either a yellow-brown or greenish-grey. This he terms the *toning* Plate. A moderately good stone (for the best kind is not necessary) is selected, and grained as for a chalk drawing; its whole surface to be covered over with an ink composed of four parts wax, one part soap, and two parts vermilion, not too thick, yet sufficiently strong to resist the action of the aquafortis. This ink, dissolved in rain water, is applied to the stone or toning Plate in a liquid state with a brush. When the reddened Plate is perfectly dry, a full impression from the original stone is taken, and this proof immediately applied for reimpression to the reddened stone. The red ground, being chiefly of wax, is easily scraped off in places where the drawing indicates that lights should be left. The same Plate is then washed with a solution of aquafortis, (about twenty parts water to one of the acid,) and, finally, coated with gum. It is then ready for giving impressions.

Compound Lithography.

Toning plate

Retouching.

The discovery of a method for retouching, on the stone, any given portion of a Lithographic drawing, supersedes in some measure the process last mentioned. The honour of the invention is said to be divided between M. Hullmandel, of London, and M. Engelmann, of Paris, neither of whom, however, have published their *secret*, so that the claims of each competitor must remain *sub judice* until the disclosure of further evidence.

For imitation of mezzotinto, (No. 5.) the entire stone Plate (its margin of course excepted, which may be stopped out,) is to be covered with a coat of Lithographic ink (Note (LL.) dabbed uniformly over it, and care must be taken not to leave the substance too thick on the surface. A coat of thin varnish, or of gum arabic, is then passed over the plate, and after transferring the design, the Artist proceeds to remove the lights with his etching point or mezzotinto scraper. These instruments must be sufficiently sharp to clear away the ink, otherwise they will only serve to spread the oily or resinous vehicle, and cause extreme darks instead of lights. (See directions under *Dabbing* in the last Note.)

Lithography

Imitation of mezzotinto.

No. 6. differs little as to the vehicles used from the ordinary methods of this kind of printing. No. 7 requires only a good clear impression of the letter press or copper-plate to be taken, and then, while yet wet, to be laid on the stone, which latter being passed through the press, receives an exact transfer of the printed matter. No. 9 is, we believe, seldom resorted to but where the scraper or the needle has failed of the effect intended, and consists in removing, by means of the graver, such portions of the surface as are required to be perfectly free from colour.

Of the method No. 10. the following account has been given. Let the stone Plate be covered with a solution of gum arabic coloured with lamp-black. When perfectly dry it is ready to receive the design, which is to be carefully proceeded with by means of etching needles of different thicknesses, according to the breadth of the several lines. The operator merely scratches off the coating of gum from the surface without making any incision into the stone. The analogy between this process and that of etching (Note BB.) is evident. The gum answers to the etching ground, and as the latter protects certain parts of the copper-plate from corrosion by the acid; so the former, in the present instance, preserves the stone from the action of oily or resinous matter. The Lithographic or resinous ink is now well rubbed over the stone, which is defended from it in every part but where the scratches have been made. The stone is then well sponged with water, and the ground of gum and lamp-black being thereby washed off the surface, the lines of the ink remain where the designer had rubbed them in. This process may be repeated till the operator is satisfied with his work. Instead of the resinous ink, the scratches may be filled up with copal varnish, which renders the design more durable, as the varnish when dry becomes very hard, and affords effectual resistance to alkalis, weak acids, oil of turpentine, or to alcohol; so that during the operation of printing the stone may be cleansed without injury by means of any one of those substances. The copal varnish, however, is only available for the rubbing process just stated; it is not sufficiently fluid to be manageable with a pen. M. Englemann remarks of this process, (*Manuel du Dessinateur Lithographe*, p. 69.) *Ce mode était dans son exécution presque aussi long, presque aussi difficile que la gravure à l'eau forte; on y a renoncé, et il n'est employé maintenant que par les personnes qui n'ont que des connaissances incomplettes dans le travail de la plume. Le seul cas où l'on peut recourir avec avantage à ce genre de gravure, c'est lorsqu'il s'agit de tracer des parties extrémement fines, telles que les ciels et les lointains, que la plume ne rendrait certainement pas avec autant de délicatesse: en définitif, cette espèce de gravure offre des singuliers rapprochemens avec celle à la pointe sèche sur cuivre.*

Method for very fine work analogous to etching.

Reference to Plates iii. and iv. of Monograms used by some of the principal Engravers. Observe: the names numbered 1—18 are of *French* Engravers: 19—56 of *German:* 57—93 of *Flemish* and *Dutch:* and 94—126 of *Italian.*

Monograms.

	No.
Agostino Venetiano	95
Aldegrever (Henry)	34
Altdorfer (Albert)	24
Amman (Jost, Justus, or Jodocus)	47
Andreani (Andrea)	112
Antonio (Marc) see *Raimondi*	99
Assen (Walter van)	59
Audenaerde (Robert van)	89
Barbiere (Domenico del)	102
Barriere (Dominique)	15
Baur (John William)	53
Beccafumi (Domenico)	96
Beham (Hans Sebald)	30
Beham (Bartholomew)	32
Berghem (Nicholas)	83
Bernard (Solomon)	7
Binck (James)	36
Bleck or Bleeck (Peter van)	91
Bloemaert (Abraham)	78
Boivin (René)	8
Boldini (Nicolo)	107
Bolswert (Schelt ius a)	81
Bolswert (Adam a)	82
Bonavera (Domenico Maria)	126
Bonasone (Giulio)	101
Bos or Bosche (Jerome)	57
Brebiette (Pierre)	10
Brie (Theodore de)	39
Broeck (Crispin Vanden)	63
Brosamer (Hans)	35
Burghmair (Hans or Johan)	31
Callot (Jaques or Giacomo)	123
Cantagallina (Remigio)	121
Caracci (Annibale)	113
Caraglio (Giovanni Giacomo)	110
Castiglione (Benedetto)	124
Chaveau (François)	15
Cock (Jerome)	64
Cort (Cornelius)	71
Cranach (Lucas)	28
Daret (Pierre)	12
David (Jerome)	11
Davin, Daris, or Daret (Leon)	98
Dellabella (Stefano)	122
Durer (Albert)	25
Duvet or Danet (Jean)	2
Fantuzzi (Antonio)	109
Fialetti (Odoardo)	115
Galle (Philip)	70
Garner (Antoine)	13
Garnier (Noel)	3
Gaultier (Lennard)	5
Ghein *the elder* (James de)	76
Ghisi (Giovanni Batista)	104
Ghisi (Georgio)	105
Ghisi (Adamo)	106
Glockenton (Alert)	23
Goltzius (Henry)	58
Guido, v. Reni.	
Holbein (Hans) *doubtful*	26

Notes on Engraving.

	No.
Holbein (Sigismond)	27
Hollar (Wenceslas)	52
Hopfer (David)	41
Hopfer (Jerome)	42
Hugtenburg (Johan van)	90
Jacobs (Lucas) van Leyden	60
Jegher (Christopher)	51
Kilian (Wolfgang)	48
Kilian (Lucas)	49
Kraus (Johan Ulric)	55
Kruger (Lucas)	29
Lairesse (Gerard)	54
Larmessin (Nicolas de)	18
Lasne (Michael)	4
Lautensach (Henry)	37
Lautensach (Hans Sebald)	38
Leeuw (William de)	92
Leyden (Lucas van), v. *Jacobs.*	
Lombart (Pierre)	16
Lorich (Melchior)	44
Mantegna (Andrea)	94
Marco Ravegnano or di Ravenna	100
Matham (James)	75
Maurer (Christopher)	46
Merian (Matthew)	50
Mocetto (Hieronymo)	97
Moreelze (Paul)	73
Muller (Herman)	93
Natalis (Michael)	80
Ostade (Adrian van)	56
Palma (Giacomo)	111
Passe (Crispin de)	61
Passe (William de)	62
Passe (Magdalen de)	65
Passe (Simon de)	66
Penni (Lucas)	103
Penz (Gregory)	33
Perrier (François)	9
Quast (Peter)	84
Raimondi (Marc Antonio)	99
Ravenna (Marco di)	100
Reich (Wendel)	1
Reni (Guido)	117
Ribera (Giuseppe) *il Spagnoletto*	118
Rosa (Salvator)	120
Rota (Martino)	108
Sadeler (Johan)	69
Saenredam (Johan)	77
Schaufflein *the elder* (Hans)	20
Schaufflein *the younger* (Hans)	21
Schoen (Martin)	19
Sichem (Christopher van)	67
Sichem (Cornelius van)	68
Sichem (Karl van)	74
Solis (Virgilius)	45
Somer (Johan van)	88
Spagnoletto, v. *Ribera.*	
Stella (Jaques)	17
Stimmer (Christopher)	40
Stimmer (Tobias)	43
Swanevelt (Herman van)	87
Tempesta (Antonio)	114
Testa (Pietro)	119
Uliet (Johan Jorg van)	85
Venetiano, v. *Agostino.*	
Villamena (Francesco)	116
Vorstermann (Lucas)	79
Waterloo (Antoine)	86
Wierix (Jerome)	72
Woeiriot (Pierre)	6
Zagel (Martin)	22
Zanetti (Antonio Maria)	125

Lithography

Plate II outline

Fig. 1

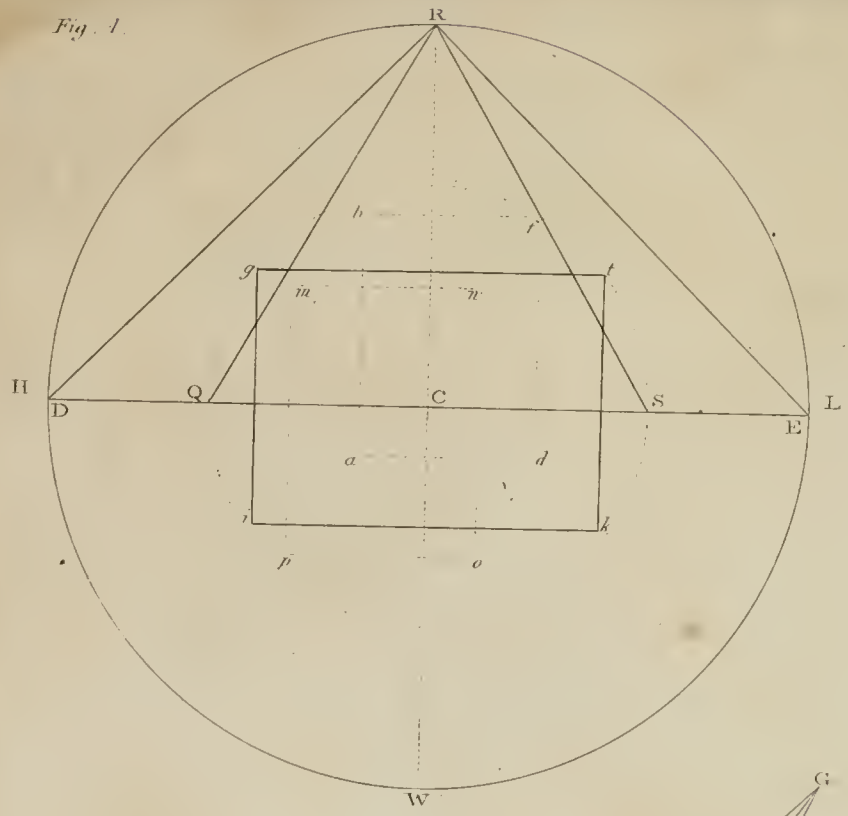


Fig 2

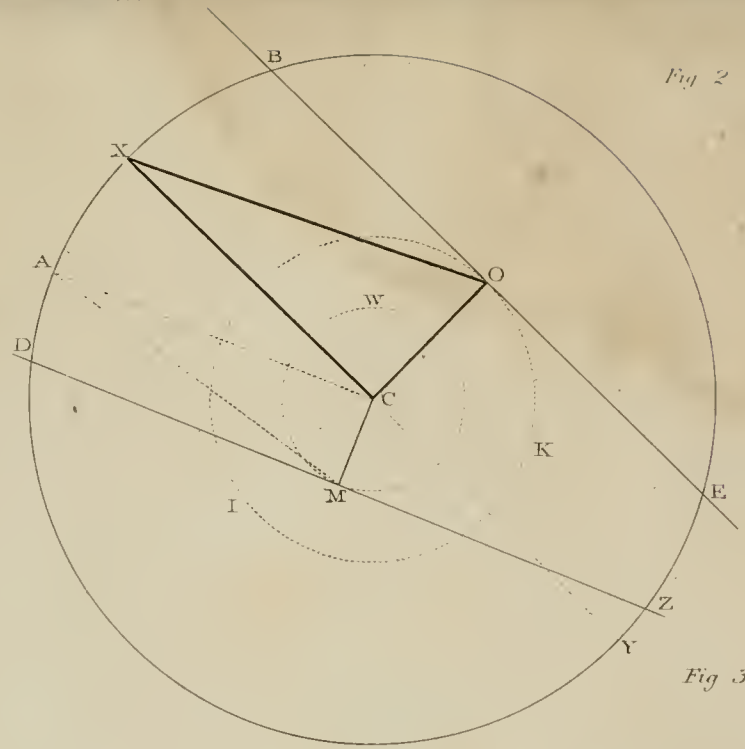
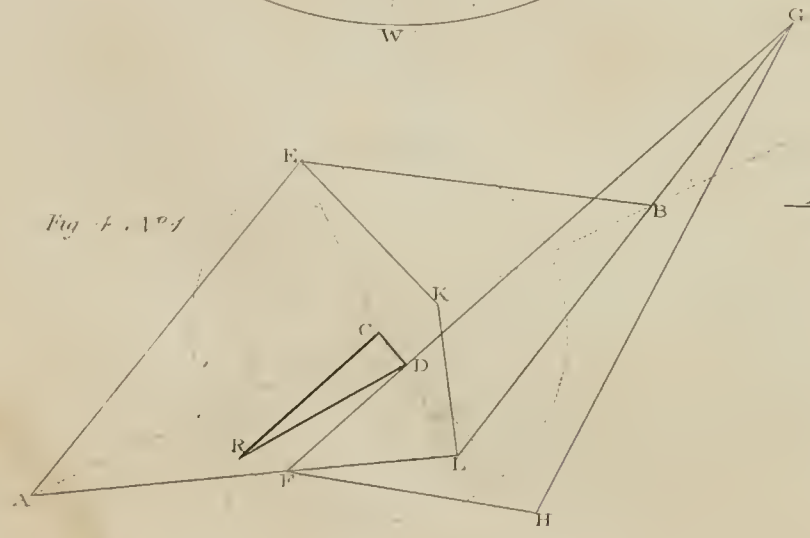


Fig 3

R

Fig 4. N°1



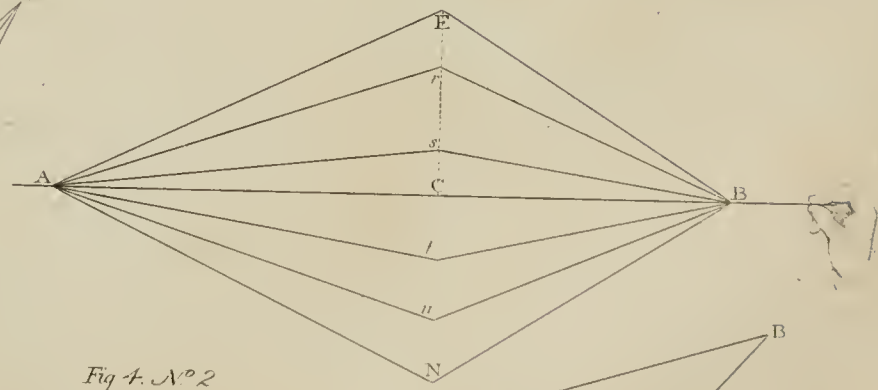
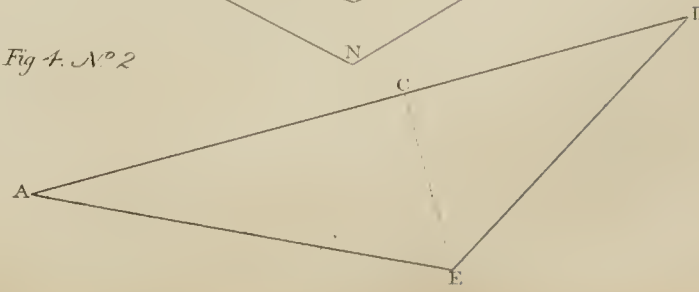


Fig 4. N°2



PAINTING

Plate II Outline.

Fig 1.

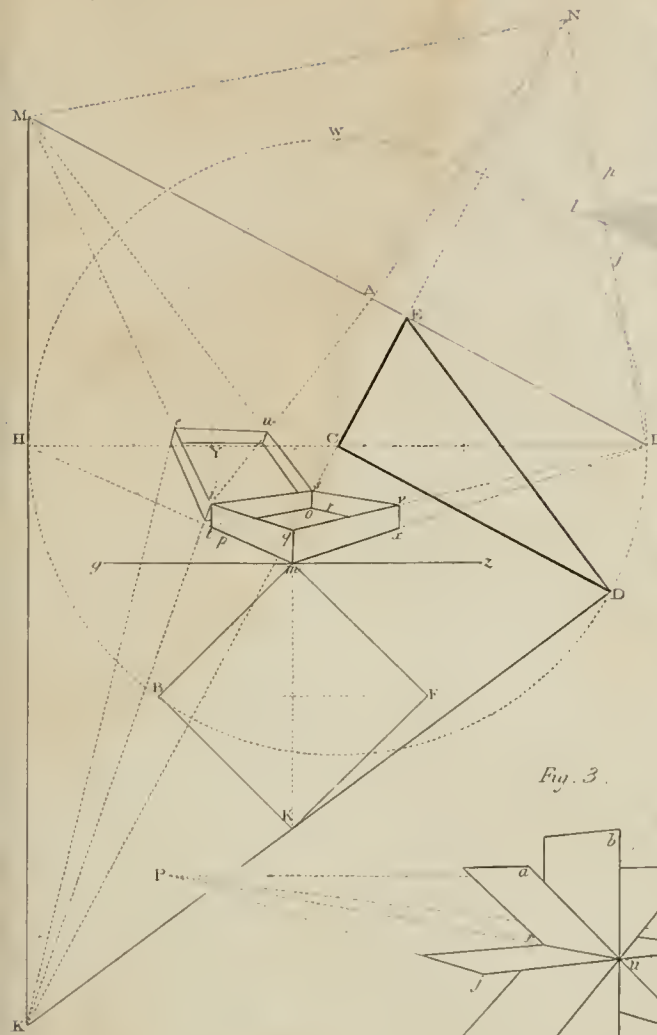


Fig 8

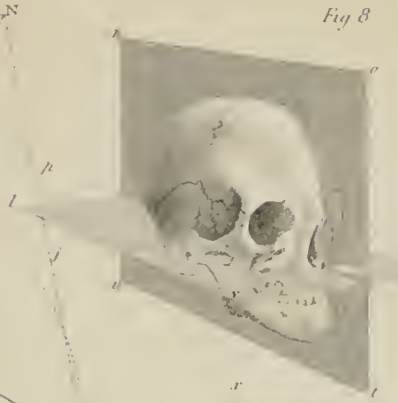


Fig 9.

Fig. 7.

Fig 2

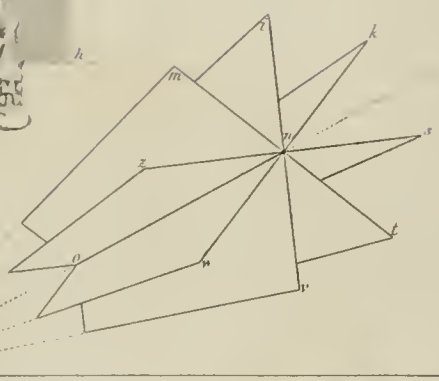
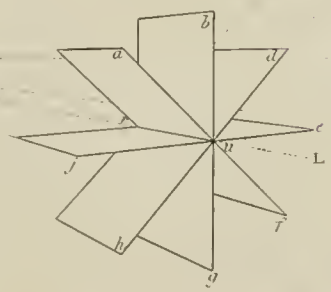


Fig. 3.



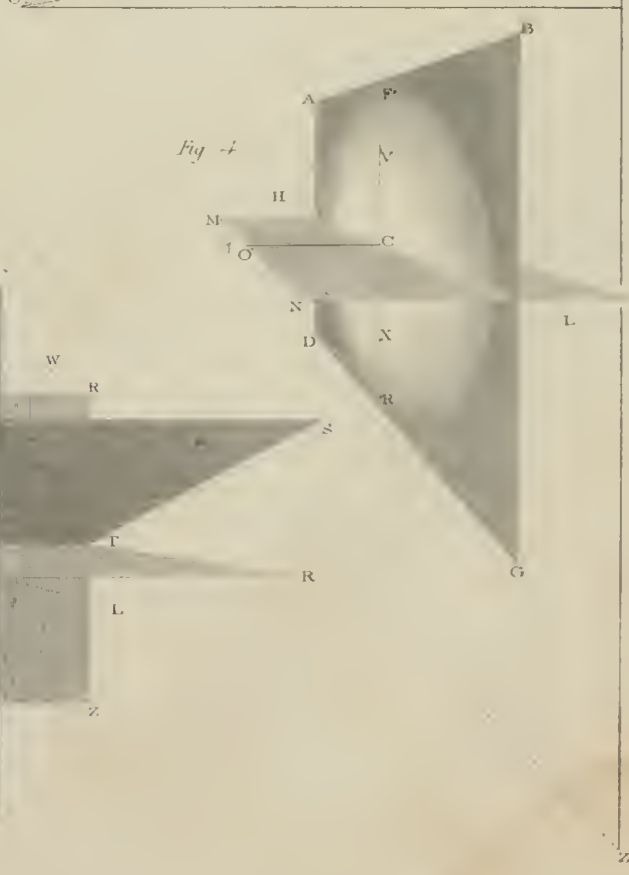


Fig 4

Fig 5

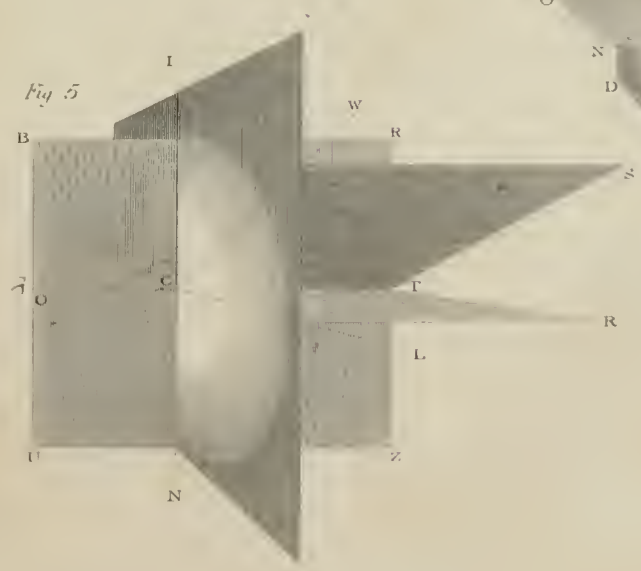
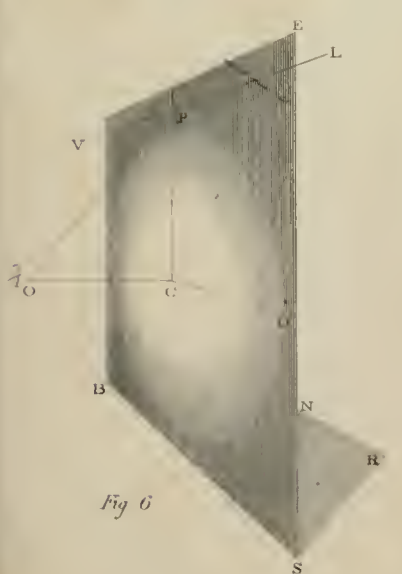
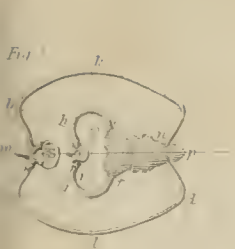


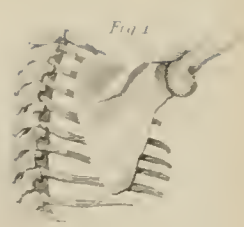
Fig 6

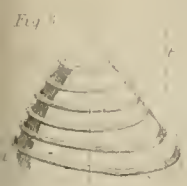


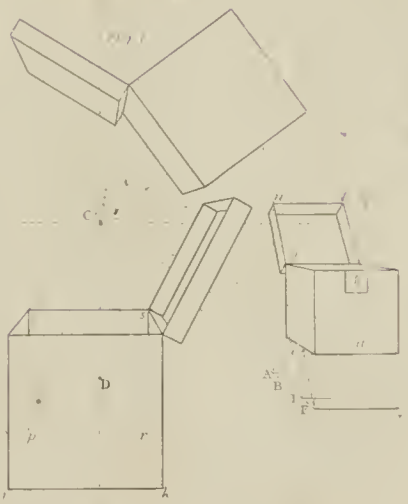
PAINTING

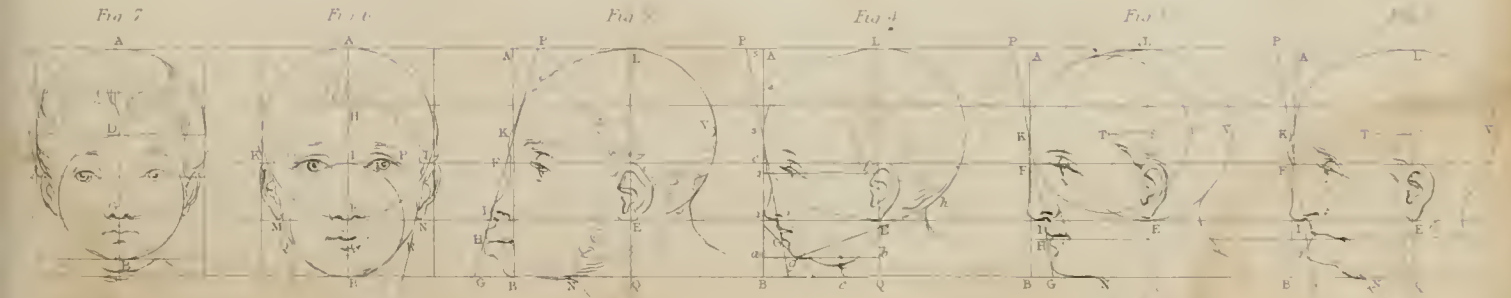
Plate 3. Outlines





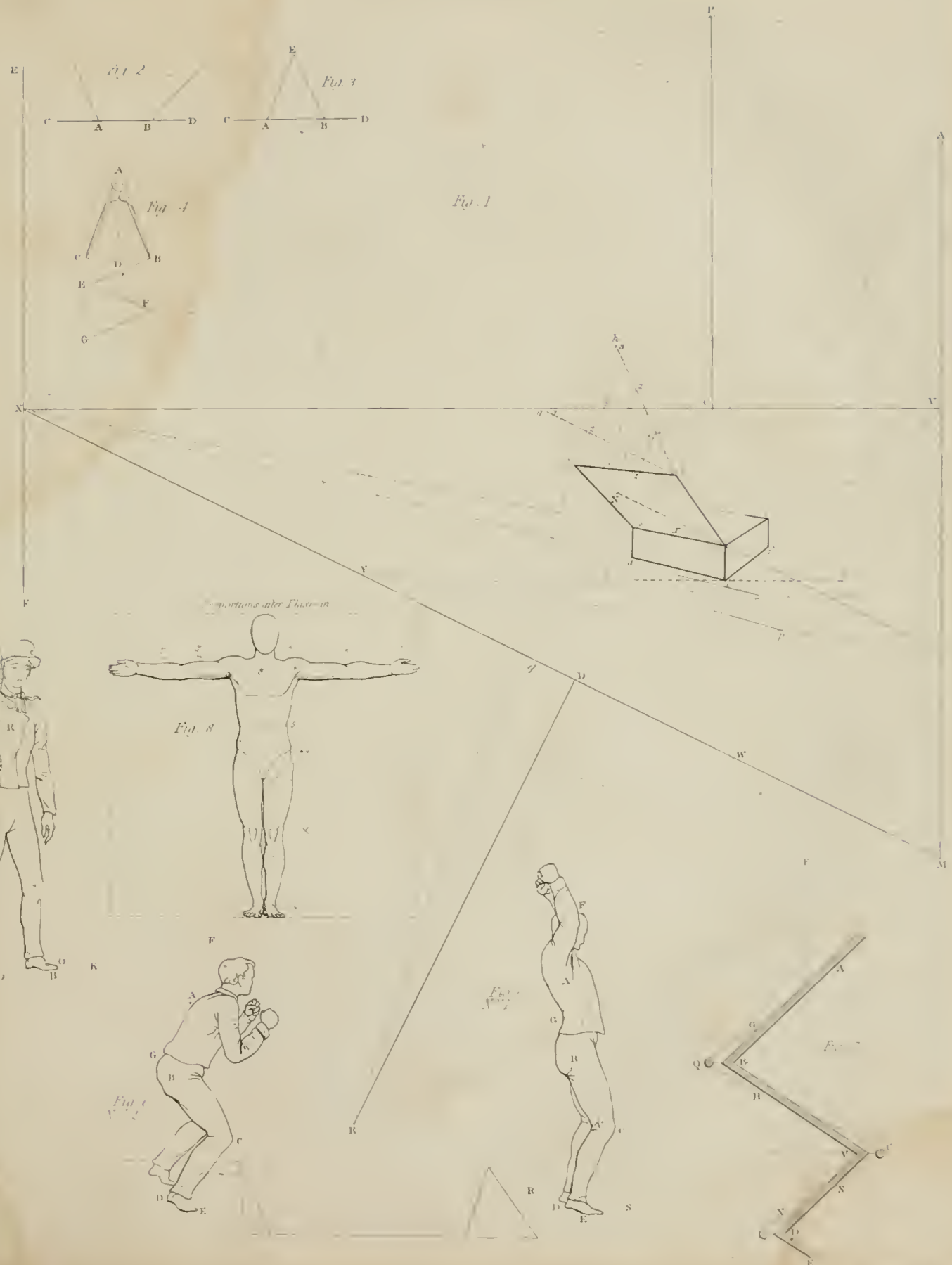






PAINTING

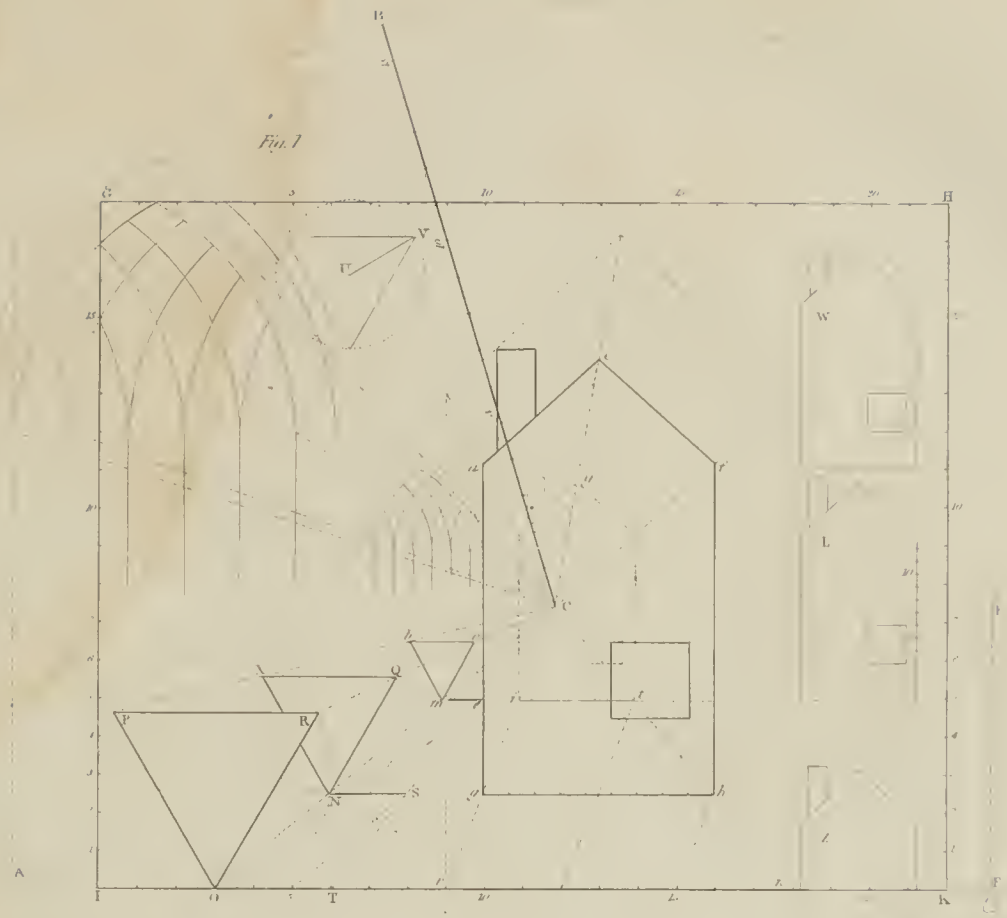
Plate V. Outline &c.



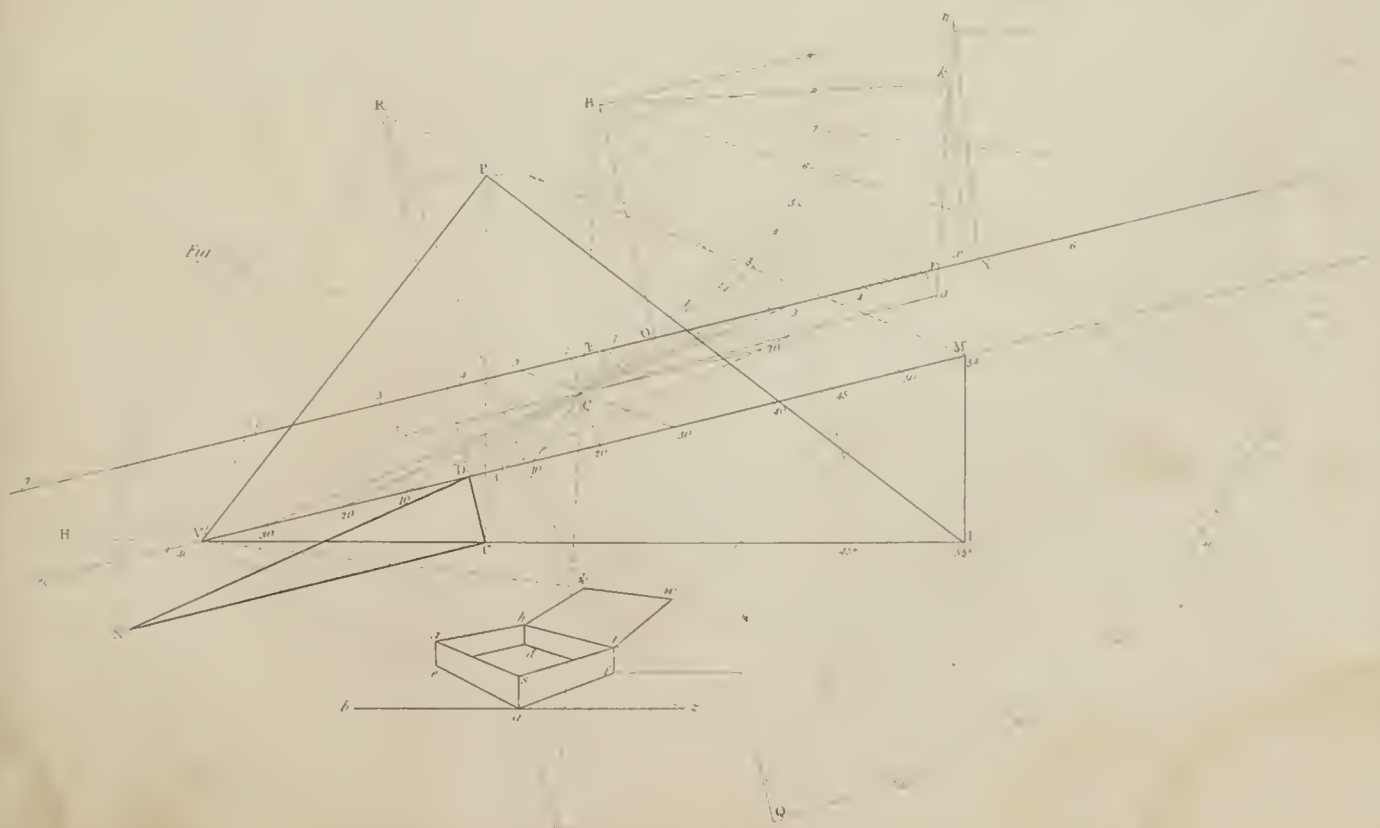
PAINTING

Plate I Outline

Fig. 1

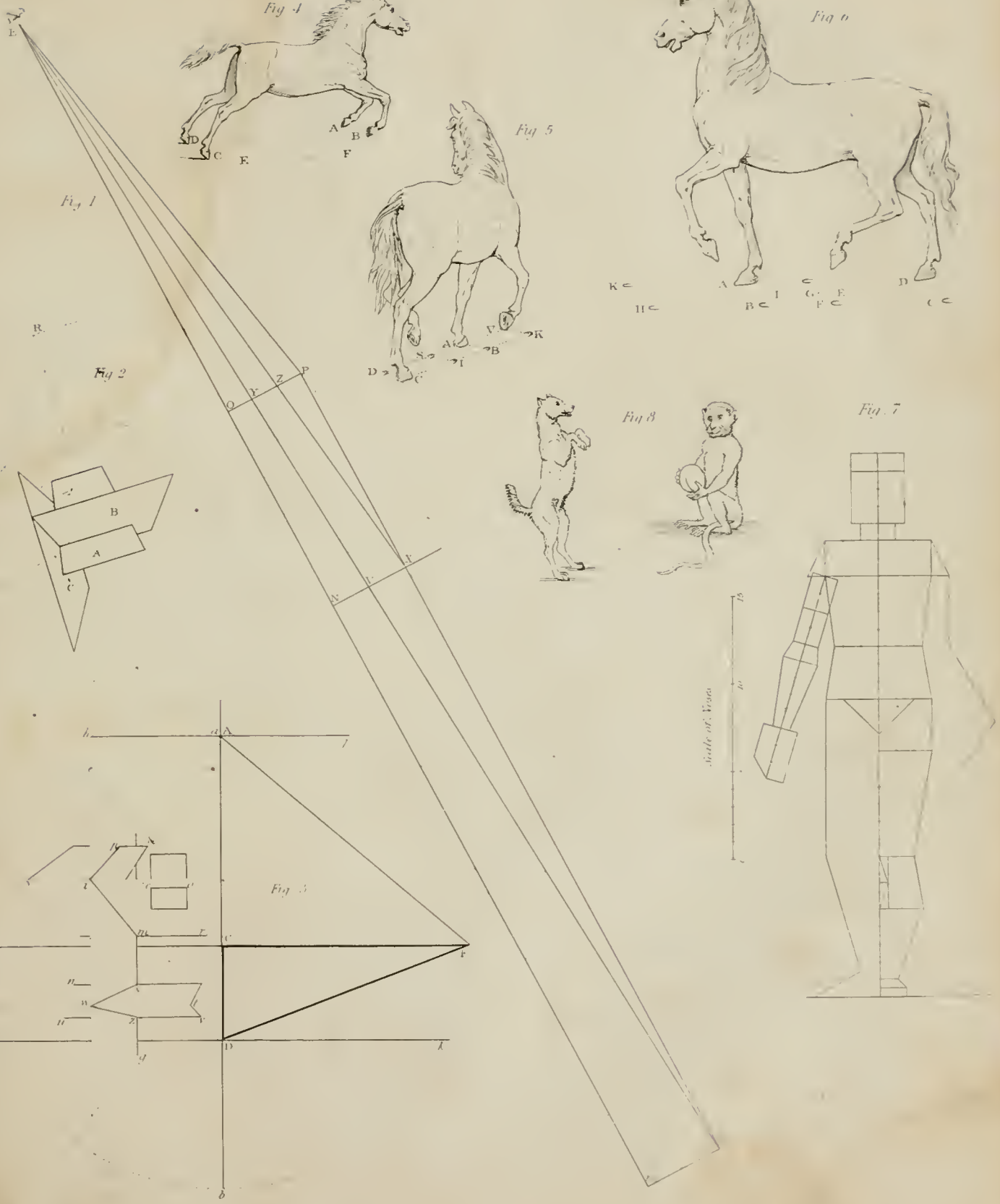


Fig



PAINTING

Plate VI Outline



PAINTING.

Plate VII Outline Composition &c

Fig 2.

Fig 3

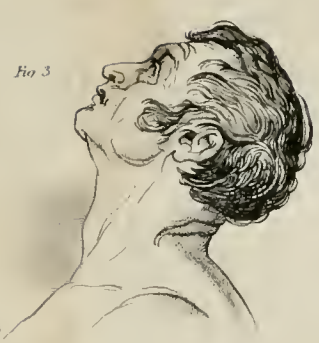


Fig 4.

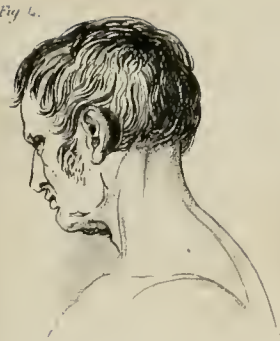


Fig 5

Fig 6

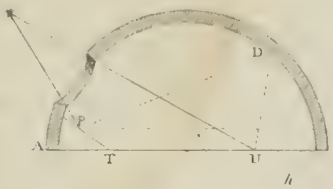


Fig 7.

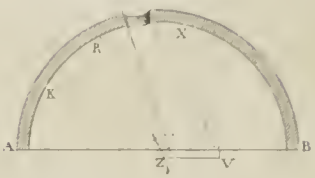
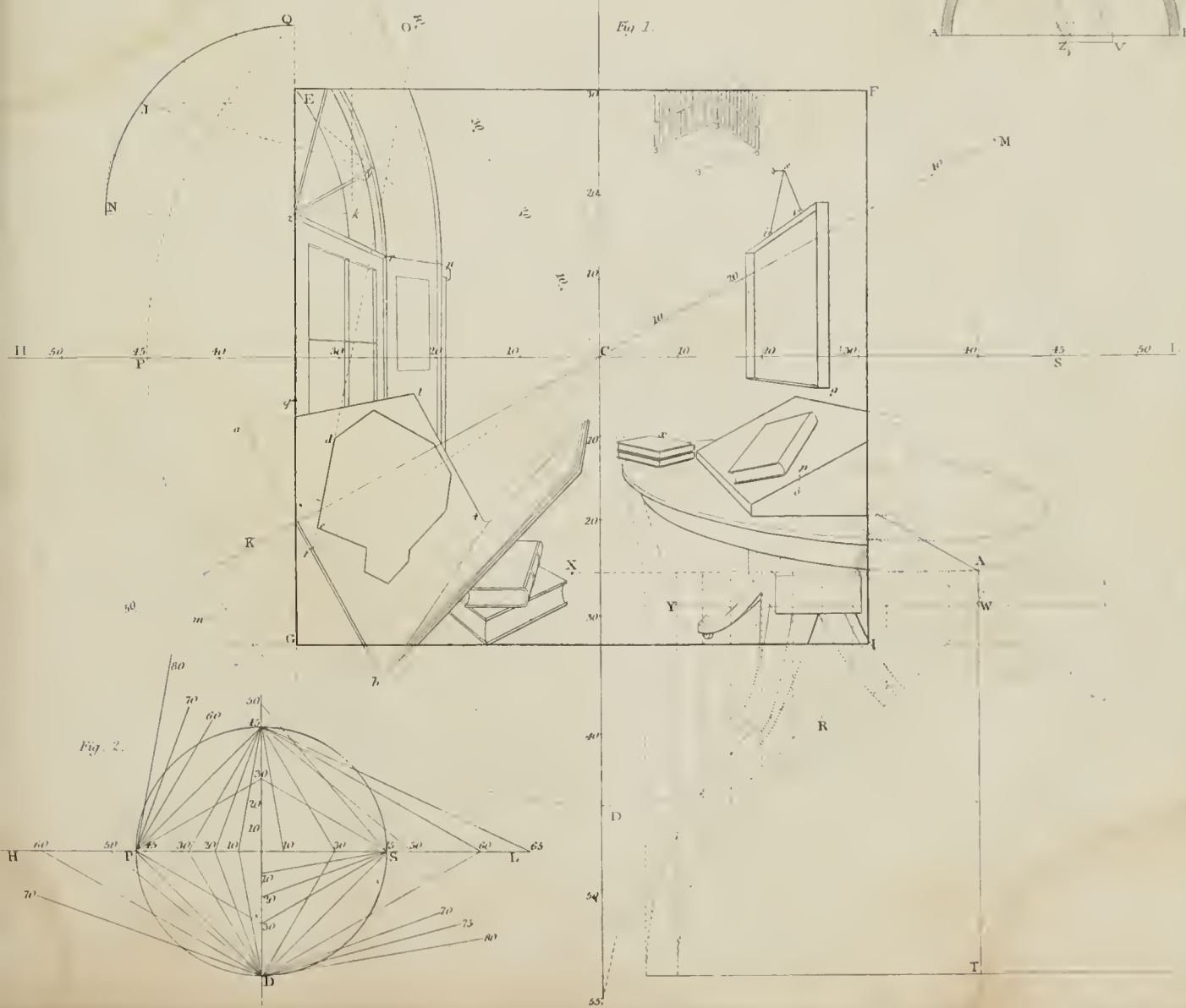


Fig 1.



PAINTING

Plate VIII Outline

Fig. 7.

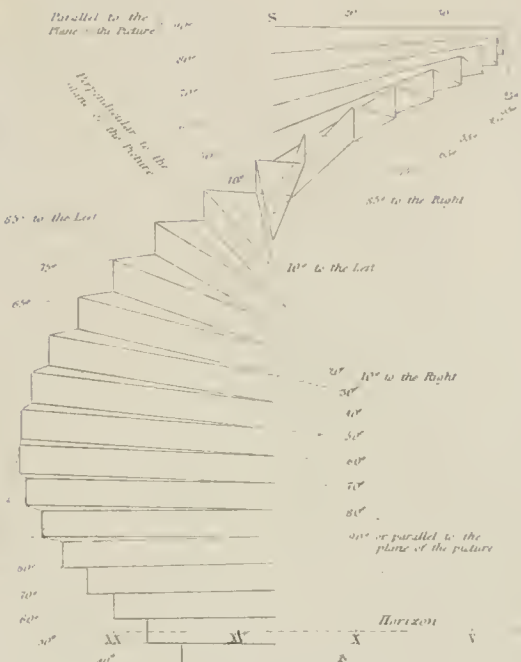


Fig. 6.

Fig. 8

Intersection parallel to the Picture

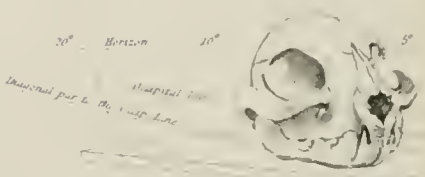


Fig. 5

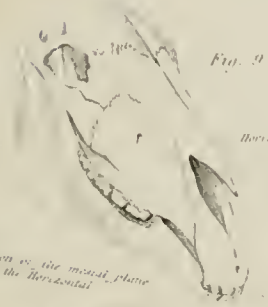


Fig. 9

Horizon

Intersection of the mental plane with the Horizontal

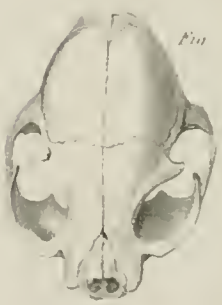


Fig. 4

Breadth

Fig. 2

Thickness, depth or height

Fig. 11

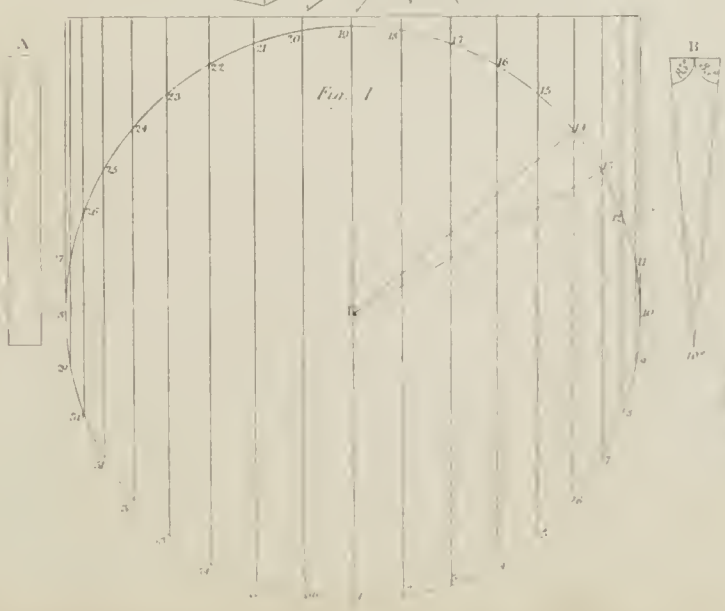


Fig. 1

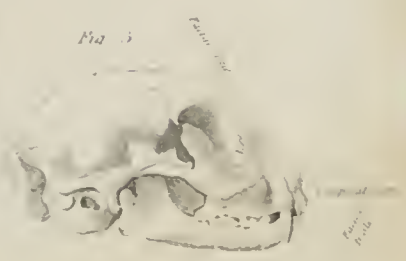


Fig. 3

Length

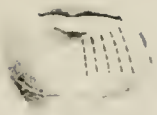
PAINTING

Plate IX Outline Expression &c.

Upward action of the frontalis N°1.

Corrugator Supercilii N°11.

Compressor Naris N°15.



Depressor labii inferioris N°6.

Depressor anguli oris N°7

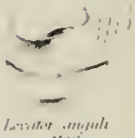
Levator labii superioris alaquenasi N°11.

Orbicularis oris N°12 Zygomatici N°9.

Levator labii superioris N°10.

Levator menti or Superbus N°4.

Fig. 2



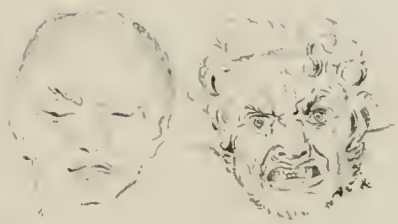
Levator anguli oris N°8

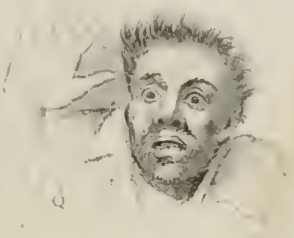
Depressor labii superioris alaquenasi N°5.

Fig. 5

Fig. 1

Fig. 4





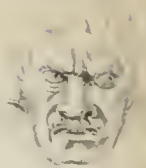
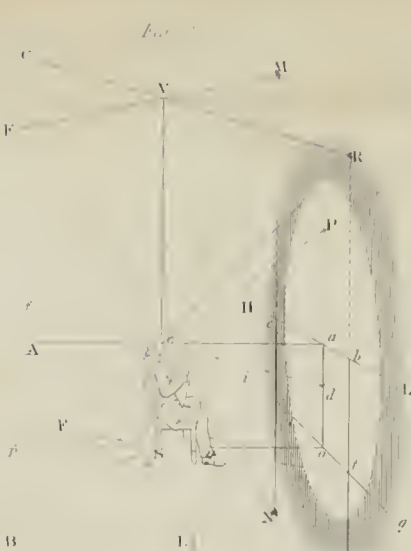


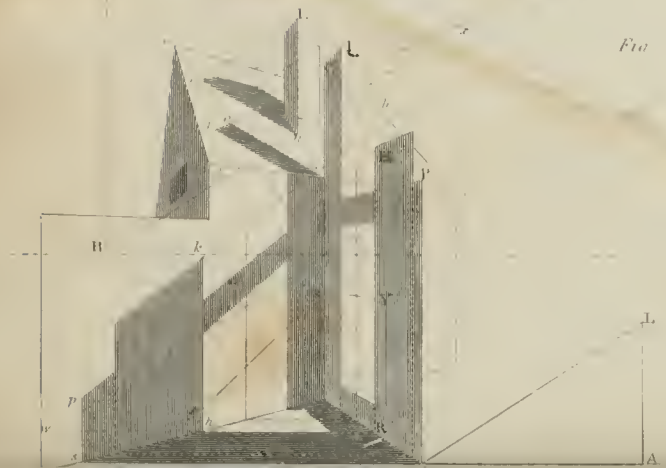
Plate X Outline Light & Shadow &c

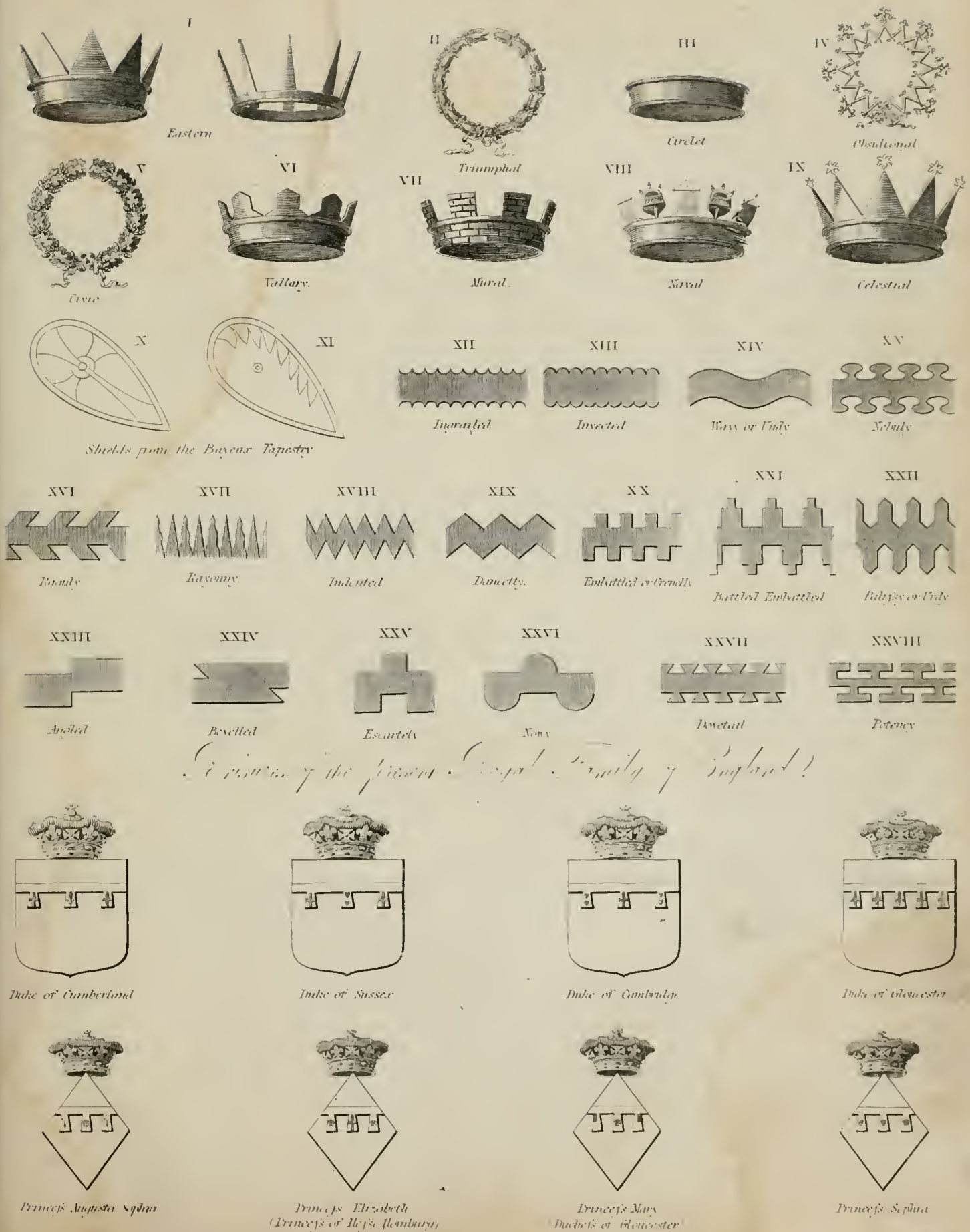
PAINTING

Plate XI. Outline Composition 4

Plate XII Light and Shadow






I
Eastern
II
Triumphal
III
Circlet
IV
Obsidional
V
Civic
VI
Vallary.
VII
Mural.
VIII
Naval
IX
Celestial
X
XI
Shields from the Bayeux Tapestry
XII
Ingrailed
XIII
Invected
XIV
Wavy or Undy
XV
Nebuly
XVI
Raguly
XVII
Rayonny.
XVIII
Indented
XIX
Dancetty.
XX
Embattled or Crenelly
XXI
Battled Embattled
XXII
Palissy or Urdy
XXIII
Angled
XXIV
Bevelled
XXV
Escartely
XXVI
Nowy
XXVII
Dovetail
XXVIII
Potency
Duke of Cumberland
Duke of Sussex
Duke of Cambridge
Duke of Gloucester
Princess Augusta Sophia
Princess Elizabeth
(Princess of Hesse Homburg)
Princess Mary
(Duchess of Gloucester)
Princess Sophia

Published as the Act directs Feb.y 1 1851 by Baldwin & Co. Paternoster Row

Published as the Act directs 1st Jan 1801 by Baldwin & Craddock Paternoster Row

HERALDRY.

72
Vernon
73
De Montier Aullier.
74
Troutbeck
75
Abbey of Salley
76
Magdalene Coll. Oxford
77
Lebaret
78
Tournay.
79
Fitzhugh.
80
Wolfsthall
81
Winterfall.
82
Shakstaff.
83
Discord
84
Clare.
85
Aston
86
Chevrouney.
87
Pearson.
88
Pauling
89
Chandos.
90
Galdsbrough.
91
92
Rathlow.
93
Meinstorff.
94
Magdeburg
95
Stuart
96
Lancroft Priory, Cumberland
97
Baliol Coll. Oxford.
98
Liskirk.
99
Abtot Earl of Worcester.
100
Penitents of St. Francis.
102
Chichester
101
Chaloner.
103
Isle of Man.
104
Cottingham.
105
Mackenzie.
106
107
Middle Temple for Don
108
Herondon.
109
Town of Bedford
110
Russia.
111
Seymour
112
Dauphin of France.
113
Town of Poole

HERALDRY.

114

Colston.

115

Dominion or Thiert.

116

Stephen King of England.

117

Holtar

118

Crest of Asgo

City of Normandy

120

Sir Isaac Heard

121

Harling

122

Inner Temple London

123

Antilope

124

Arnold

125

Thos

126

Grays Inn London.

127

Commo.

128

Crest of Barber Surgeons Comp Londen

129

Edward the Confessor

130

Crest of Seymour

131

Vere

132

Langley

133

Kier

134

Cardinal Wolsey.
also Christ Church Oxon.

135

France

Doctors Commons.

Ufford

138

All Souls Coll: Oxon

139

Sextile.

140

Hereford.

141

Turkey.

142

Tutbury Monastery

143

D'Eyncourt

Published as the Act directs August 1st 1792 by Longman & Rees, Paternoster Row.

HERALDRY.

Published as the Act directs August 1 1831 by Baldwin & Co Paternoster Row

HERALDRY.

178
Town of Stafford

179
Sclavonia

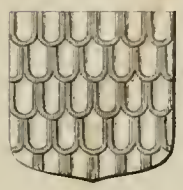
180
Crest of Wake

181
Warre

182
Earldom of the Isle of Arran

183
James of Surrey

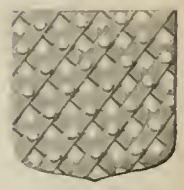
184
New Nantwich Priory

185 
Grimball

186
Spence

187
Boro' of Harwich

188
Thavies Inn London

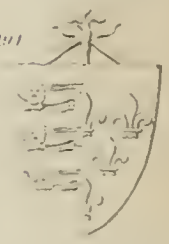
189 
Bardonenche

190
Johnson

191
Bourchier

192
Jocelyn

193
Carmichael

194 
Seal of Margaret consort of Edward 1st

Abatements.

195
Deli.

196
Escutcheon reversed

197
Point dexter parted

198
Point in Point

199
Point Champain

200
Gore Sinister

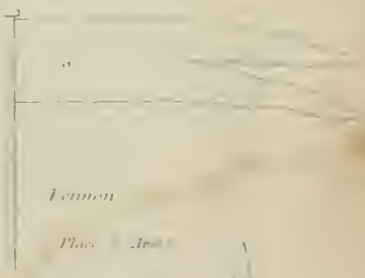
201
Gussets

Ensigns.

Standard

a Place of national badge or badge of office.
b Place of family badge
c,c,c Place of poesy or motto
d,d,d Ornamented at pleasure

Banner



Pennon

Place of Arms

Guidon

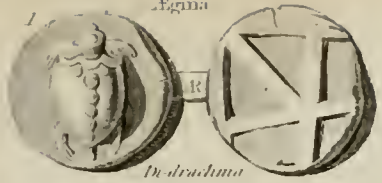
a Place of Arms

Pennoncell

Pennoncell

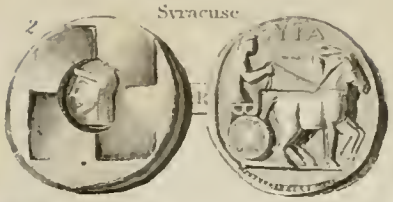
Heraldick Gentleman

1 Ægina

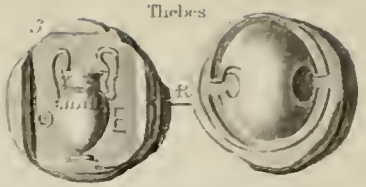


Didrachma

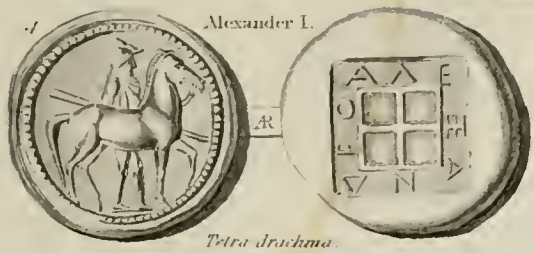
2 Syracuse



3 Thebes



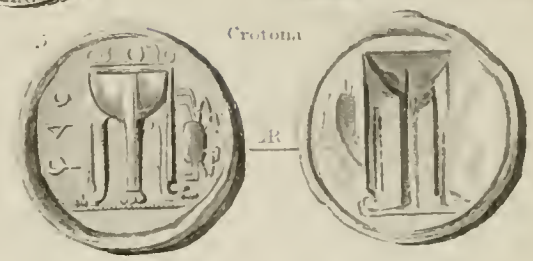
4 Alexander I.



Tetra drachma.

GRECIAN COINS.

5 Crotona



6 Ptolemy I.

Octo-drachma.

7 Athens

Tetra-drachma.

8 Alexander the G.

Tetra drachma

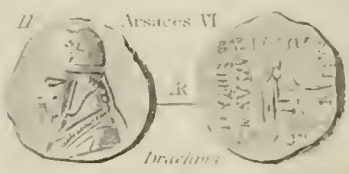
9 Philip II.

Di drachma.

10 Hiero II

Drachma.

11 Arsaces VI



Drachma

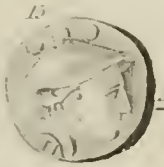
ROMAN COINS.

(Consular.)

16

Uncia.

15

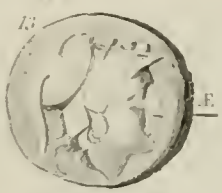


Sextans

14

Quadrans.

13



Triens

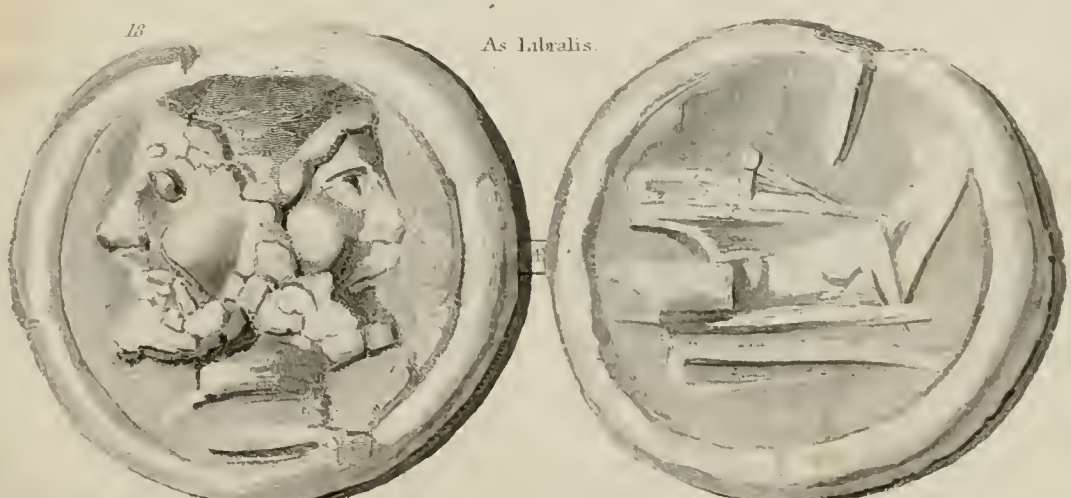
12

As.

17

Denarius

18 As Libralis.



20

Sestertius

21

Quinarius

22

Denarius

23

24

25

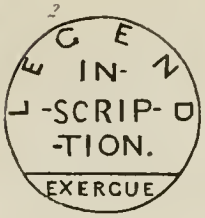
Scrupulum

ROMAN COINS
Imperial.

1 Domitian

Sestertius or Large Brass

2



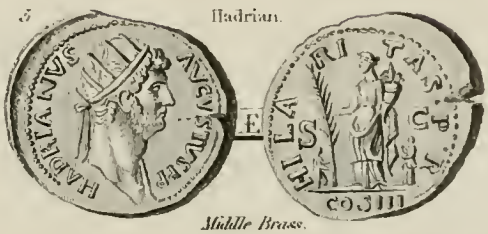
3 Titus

Sestertius or Large Brass

4 Antoninus Pius.

Denarius

5 Hadrian.



Middle Brass.

6 Augustus.

Aureus

7 Faustina.

Quinarius

Reverse of Gordian III.

Reverse of Nero.

COINS OF BARBARIAN NATIONS.

10 Lydia.

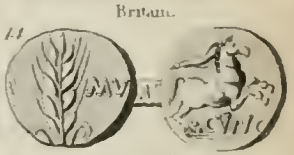
11

12 Persia.

Daric.

13 Judæa

14 Britain.



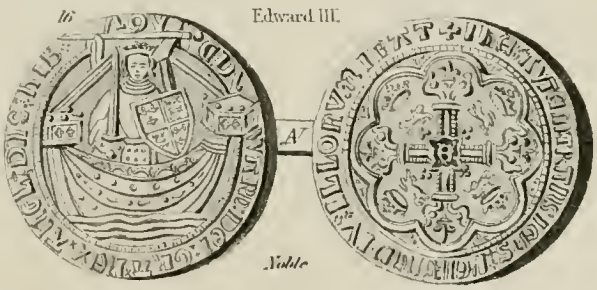
Cunobelin.

ENGLISH COINS.

15 William the II.

Penny.

16 Edward III.



Noble

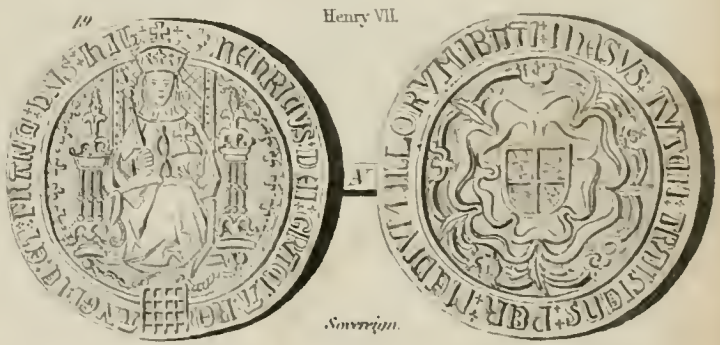
17 Henry III.

Penny

18 Edward VI

Crown.

19 Henry VII.

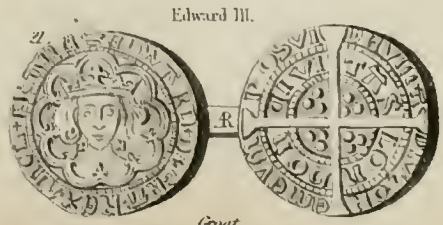


Sovereign.

20 Henry VII.

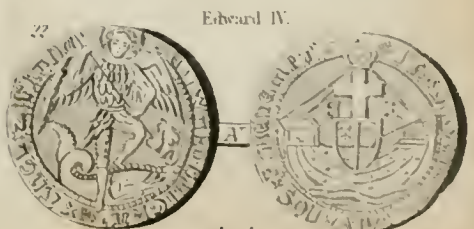
Shilling.

21 Edward III.



Groat.

22 Edward IV.



Angel

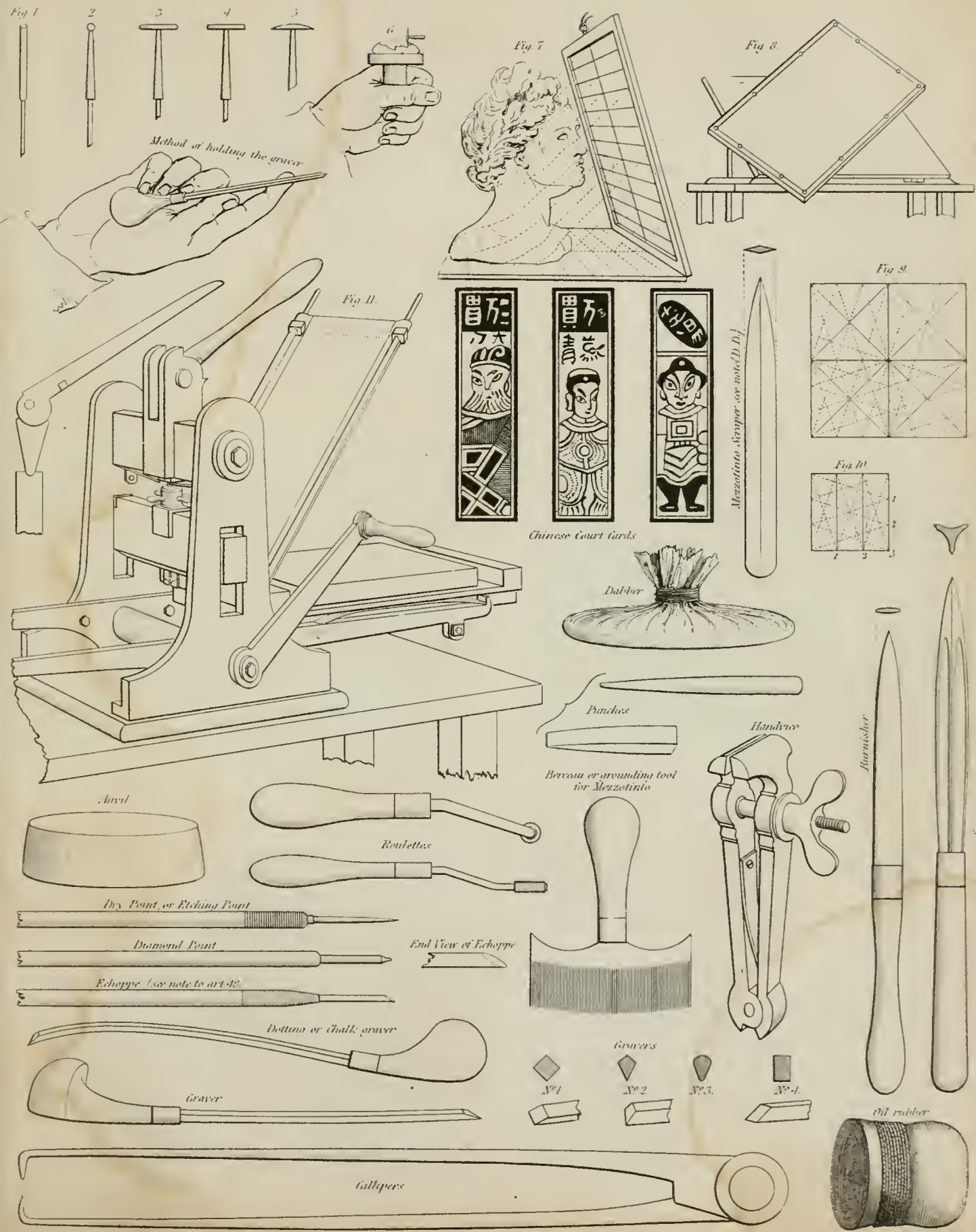


Fig 1
2
3
4
5
6
Method of holding the graver
Fig 7
Fig 8
Fig 9
Fig 10
Fig 11
Mezzotinto Scraper see note(D.D.)
Chinese Court Cards
Dabber
Patches
Burnisher
Scraper
Handvice
Berceau or grounding tool for Mezzotinto
Anvil
Roulettes
Dry Point, or Etching Point
Diamond Point
End View of Echoppe
Echoppe (see note to art. E)
Dotting or Chalk graver
Graver
Gravers
№1
№2
№3
№4
Oil rubber
Callipers

ENGRAVING.

The Art exemplified on Metal in six varieties viz:

Etching with soft ground

Chalk engraving

Mezzotinto

Aquatinta

Line engraving etched

Line engraving finished

ENGRAVING.

Monograms of Engravers

1 Wendel Reich

2 Jean Duvet or Danet — 2 Marks

3 Noel Garnier

4 Michael Lasne

5 Leonard Gaultier

6 Pierre Woeiriot of Bois le duc — 2 Cyphers — The Wood tuts of P. Woeiriot

7 Solomon Bernard — 2 Marks

8 Rene Boivin

9 Francois Perrier — 2 Cyphers

10 Pierre Brebiette

11 Jerome David — 3 Cyphers

12 Pierre Duret

13 Antoine Garner

14 François Chaveau

15 Dominique Barriere

16 Pierre Lombart

17 Jacques Stella

18 Nicolas de Larmessin

19 Martin Schoen

20 Hans Schauffilien Senr — 3 Marks

21 Hans Schauffilien Junr — 3 Marks

22 Martin Zagel — 2 Marks

23 Albert Glockenton — 2 Marks

24 Albert Altdorfer — 2 Marks

25 Albert Durer — 2 Marks

26 Hans Holbein — 2 doubtful marks

27 Sigismond Holbein

28 Lucas Cranach — 5 Marks

29 Lucas Kruger

30 Han Sebald Beham — his 1st mark — his 2nd mark

31 Burghmair, Balding & Bresang — of doubtful authority

32 Bartholomew Beham — 2 doubtful marks

33 Gregory Penz — 2 marks

34 Henry Aldegrever

35 Hans Brosamer

36 James Binck

37 Henry Lautensach — 2 marks

38 Hans Sebald Lautensach — 2 marks

39 Theodore de Brie

40 Christopher Stimmer

41 David or Daniel Hopfer — 2 Marks

42 Jerome Hopfer

43 Tobias Stimmer — 2 Cyphers

44 Melchior Lorich — 2 Cyphers

45 Virgil Solis — 3 Cyphers

46 Christopher Maurer — 2 Cyphers

47 Jost or Jodocus Amman — 5 Marks

48 Wolfgang Kilian

49 Lucas Kilian

50 Matthew Merian — 5 Marks

51 Christopher Jegher

52 Wenceslaus Hollar — The mark used by Hollar at Prague

53 John William Baur

54 Gerard Lairesse — 4 Cyphers

55 John Ulric Kraus

56 Adrian Van Ostade — 2 Marks

57 Jerome Bos or Bosche — 2 Marks

58 Henry Goltzius

59 Walter Van Assen

60 Lucas Jacobs Van Leyden

61 Crispin de Passe

ENGRAVING.

Monograms of Engravers

62 — William de Passe

63 — Crispin vanden Broeck — 3 Cyphers

64 — Jerome Cock — 2 Cyphers

65 — Maudalen de Passe — 2 Cyphers

66 — Simon de Passe

67 — Christopher van Sichem

68 — Cornelius van Sichem

69 — John Sadeler

70 — Philip Galle — 2 Marks

71 — Cornelius Cort

72 — Jerome Wierix

73 — Paul Moreelze

74 — Karl van Sichem

75 — James Matham

76 — James de Ghein the elder

77 — John or Hans Saenredam — 2 Cyphers

78 — Abraham Bloemart

79 — Lucas Verstermann

80 — Michael Natalis — 2 Marks

81 — Sheltius à Bolswert — 2 Marks

82 — Adam a Bolswert — 2 Marks

83 — Nicholas Berghem — 3 Cyphers

84 — Peter Quast — 4 Cyphers

85 — John George van Vliet — 2 Marks

86 — Antonie Waterloo

87 — Herman van Swanevelt

88 — John van Somer

89 — Robert van Audenaerde

90 — John van Hugtenburg

91 — Peter van Bleeck

92 — William de Leeuw

93 — Herman Muller — 3 Marks

94 — Andrea Mantegna

95 — Agostino of Venice

96 — Dominico Beccafumi — of doubtful Authority

97 — Hieronyme Mocetto — 2 Marks

98 — Leon Daris or Davin

99 — Marc Antonio — 3 Cyphers and 3 Marks

100 — Marc of Ravenna — 2 Cyphers

101 — Giulio Bonasone — 3 Marks

102 — Domenico del Barbiere — 2 Marks

103 — Lucas Penni — 4 Marks

104 — Giovanni Batista Ghisi

105 — Georgio Ghisi of Mantua — 2 Marks

106 — Adamo Ghisi

107 — Nicolo Boldini

108 — Martino Rota

109 — Antonio Fantuzzi — 2 Cyphers

110 — Giov. Giacomo Caraglio

111 — Giacomo Palma

112 — Andrea Andreani — 3 Marks

113 — Annibale Carracci

114 — Antonio Tempesta — 4 Marks

115 — Odoardo Fialetti

116 — Francesco Villamena

117 — Guido Reni — 2 Marks

118 — Giuseppe Ribera l'Espagnolet — 3 Marks

119 — Pietro Testa

120 — Salvator Rosa

121 — Remigio Cantagallina

122 — Stefano Della Bella — 2 Marks

123 — Jaques Callot

124 — Benedetto Castiglione — 2 Cyphers

125 — Antonio Maria Zanetti

126 — Domenico Maria Bonavera — 2 Cyphers

UNIVERSITY OF CALIFORNIA AT LOS ANGELES
THE UNIVERSITY LIBRARY
This book is DUE on the last date stamped below

AUG 1 8 1943

OCT 1 1944

MAY 1 5 1945

INTERLIBRARY LOANS

APR 1 1 1958

JAN 3 - 1961

NOV 6 1961

APR 17 1962

REC'D LD-URL

MAR 5 1973

Form L-9
20m-1,'42(8519)

UNIVERSITY OF CALIFORNIA
AT
LOS ANGELES
LIBRARY

PLEASE DO NOT REMOVE
THIS BOOK CARD

THE LIBRARY OF THE UNIVERSITY OF CALIFORNIA LOS ANGELES

University Research Library

N 5203 .S58

CALL NUMBER
SER
VOL
PT
COP
AUTHOR

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58
IBM J95933